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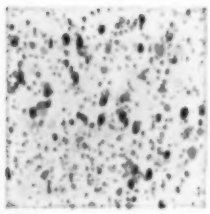
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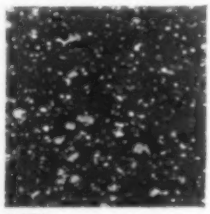
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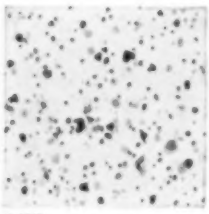
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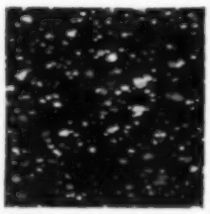
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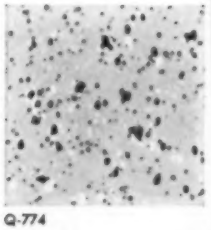
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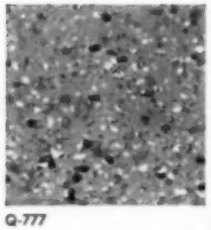
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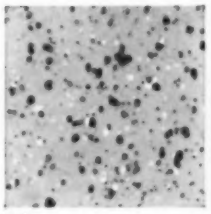
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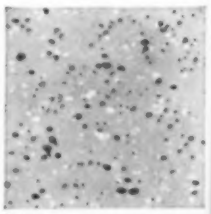
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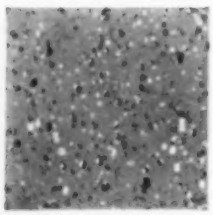
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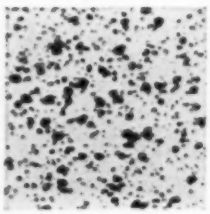
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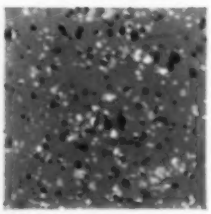
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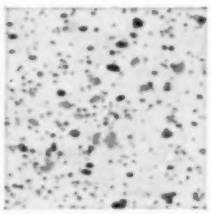
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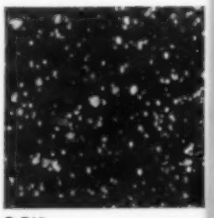
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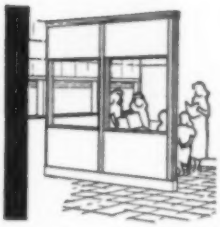

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March 1956

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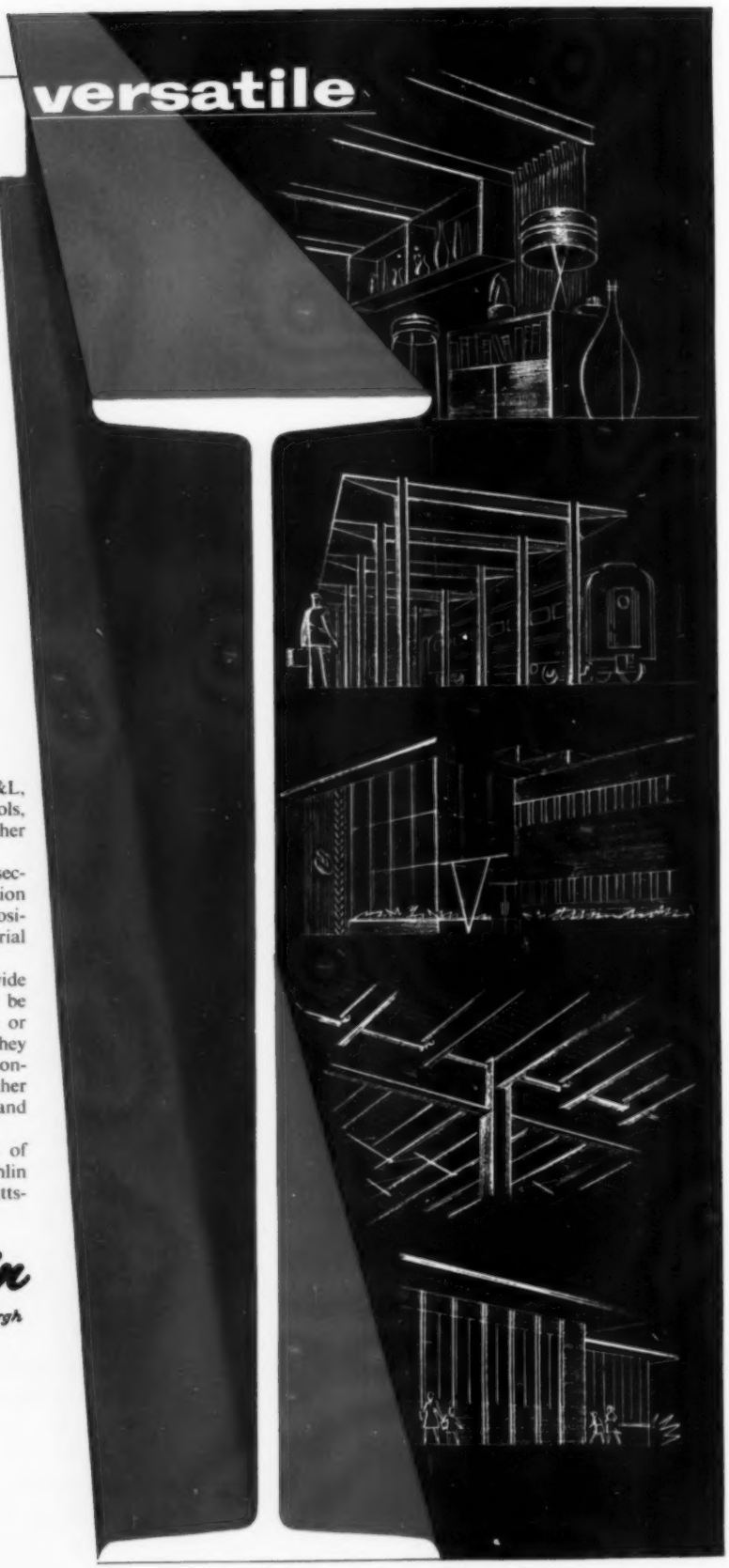

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It's the Law by Bernard Tomson

P/A Office Practice *article on the Exclusion of Churches from neighborhoods zoned for residences only.*

IT'S THE LAW (*February 1956 P/A*) discussed zoning regulations which attempted to exclude public or private schools from residential districts. May a zoning ordinance exclude churches from residential areas?

Until recently, the courts had almost consistently reversed the actions of administrative officials acting under zoning regulations which operated to exclude the erection of church buildings in residential districts. In the leading case of *State ex rel Synod of Ohio* v. *Joseph* (Ohio), 39 N.E. 2d 515, the ordinance restricted a district to single-family dwellings but provided that churches (among other public and semipublic buildings) could be erected by obtaining a special permit from the zoning commission and the village council. The special permit was denied and suit was brought to compel the authorities to issue it. In granting this relief, the Court seriously questioned the constitutionality of any enactment which flatly prohibited the erection of churches in a residential district, but based its holding on the administrative application of the ordinance rather than on the constitutionality of the ordinance itself.

The authorities had sought to sustain their denial of the special permit on the grounds of public health, safety, morals, and welfare because of the increased noise, traffic congestion, parking difficulties, and the effect which a church structure would have on surrounding land values. The Court, however, on the basis of the particular facts involved in the case, eliminated each of these factors in turn, and stated its conclusion as follows:

"We conclude that respondents' refusal to grant the permit to erect the church in the residential district so long as land was available in the business district was not authorized by the ordinance from which respondents derived their powers. And we further conclude that the administrative act of respondents in refusing a permit to erect a church in the residential district, there being no adequate showing that this exclusion of the church was in furtherance of the public health, safety, morals, or the public welfare, was arbitrary and unreasonable and in violation of relator's rights under the State and Federal Constitutions."

The rationale of the relatively few cases on this aspect of zoning was simply and basically stated by the Supreme Court of Texas in *City of Sherman* v. *Simms*, 183 S.W. 2d 417, in these words:

"To exclude churches from residential districts does not promote the health, the safety, the morals, or the general welfare of the community. . . ."

That rationale was contradicted in no uncertain terms in *Bishop* v. *City of Porterville* (California) 203 Pacific 2d 823, where petitioner sought to compel the issuance of a permit to build a chapel and classrooms for religious worship and study in a single-family district. The Court found that the zoning regulations had a substantial relation to the public health, safety, morals, and welfare in the following words:

". . . since the city had power to zone the property herein affected, strictly for single-family dwellings, there was no abuse of the power in prohibiting the erection and construction of church buildings therein. It is a matter of common knowledge that people in considerable numbers assemble in churches and that parking and traffic problems exist where crowds gather. This would be true particularly in areas limited to single-family dwellings. There necessarily is an appreciable amount of noise connected with the conduct of church and 'youth activities.' These and many other factors may well enter into the determination of the legislative body in drawing the lines between districts, a determination primarily the province of the city.

"A single-family residence may be much more desirable when not in an apartment-house neighborhood or adjacent to a public building such as a church. The municipal legislative body may require that church buildings be erected to conform to health and safety regulations as provided in its building code and we see no reason to hold that churches may be erected in a single-family residential area when a duplex, triplex, or other multiple dwelling can lawfully be excluded therefrom. The provision in the ordinance for a single-family residential area affords an opportunity and inducement for the acquisition and occupation of private homes where the owners thereof may live in comparative peace, comfort and quiet. Such a zoning regulation bears a substantial relation to the public health, safety, morals, and general welfare because it tends to promote and perpetuate the American home and protect its civic and social values."

The Court dismissed the petition on the ground that it failed to state a cause of action and the appeal from this decision was dismissed by the United States Supreme Court for want of a substantial federal question (338 U.S. 805).

The question has not been settled by the U. S. Supreme Court. It will be interesting to see whether the trend of future decisions will follow the line of reasoning used in the *City of Porterville case*. As recently as June, 1955, a New York lower court said:

"While no one can deny that churches and schools promote the general welfare and good morals of every community, it is equally true that every type of edifice in a community must be erected in its proper area in order to promote the best interests of all citizens. In our nation we are proud that government agencies do not eliminate those worthy institutions which shall forever be free, but merely regulate the areas in which they shall be constructed and maintained. Without such regulations, the result would be disorder and chaos, particularly in more populous communities such as Brighton. Our narrow, traffic-laden streets testify too eloquently to the failure of our earlier Legislatures to enact regulatory laws in these and kindred matters." (*Matter of Diocese of Rochester et al.* v. *Planning Board of Town of Brighton, et al.*, 207 Misc. 1021.)

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Mechanical Engineering Critique *by William J. McGuinness*

P/A Office Practice *column on mechanical and electrical design in architecture is devoted this month to the subject, Adequate Wiring in Existing Apartment Houses.*

Wiring in 80 percent of the existing apartment houses in New York City is inadequate for the present demand, and only one building in 10 has sufficient wiring for the new appliances that families intend to buy, according to J. O. Covington, Manager of the Adequate Wiring Bureau of the Consolidated Edison Company of New York. This situation is national; similar reports come from most other large cities. The amount of current needed for electrical living has approximately doubled every 10 years for the past several decades. The fact that national sales of items like electric broilers and room air conditioners have increased fivefold in *five* years lends credence to this claim of wiring inadequacy.

Until recently the apartment dweller has suffered more from this deficiency than the home owner. Rent controls have discouraged owners from improving electrical service to tenants who could not be charged for the improvement. A recent change in the regulations of New York's Temporary State Housing Rent Commission has solved this problem to the advantage of both landlord and tenants. An example of how this change permitted the improvement of wiring in one group of apartment buildings suggests similar possible action for other owners.

Castle Village is an apartment community just north of the George Washington Bridge in New York City. It was built by Dr. Charles V. Paterno in 1939 (its architect, George Fred Pelham, received an AIA medal for its design) and ownership has remained in the same family. The management by Nehring Brothers, Inc., and their project manager, John J. Marger, has supported Dr. Paterno's original intention of maintaining an ideal community. In spite of good electrical planning, the use of many new electrical appliances had made the wiring inadequate. Tenants were forbidden by their leases to install or use electric broilers, air-conditioning units, dishwashers, clothes washers, or dryers. Being human, some of the tenants ignored these restrictive agreements. When it was found that half of the apartment circuits were overfused and about 10 percent of them plugged with cut fuses, an investigation disclosed the fact that 200 broilers and many other forbidden items were in use. The danger from this overload made the owner liable to summonses from the Department of Water Supply, Gas, and Electricity. The restriction against the use of new electrical appliances made both tenants and owner unhappy; furthermore, Consolidated Edison was unable to find channels through which it could supply current to eager customers. Largely due to the efforts of the Department of Water Supply, Gas, and Electricity and Consolidated Edison, the Temporary State Housing Rent Commission agreed to grant owners in similar circumstances a mandatory rent increase from all tenants for the purpose of defraying the cost of complete rewiring. This work was undertaken at Castle Village and after nine months is now nearing completion.

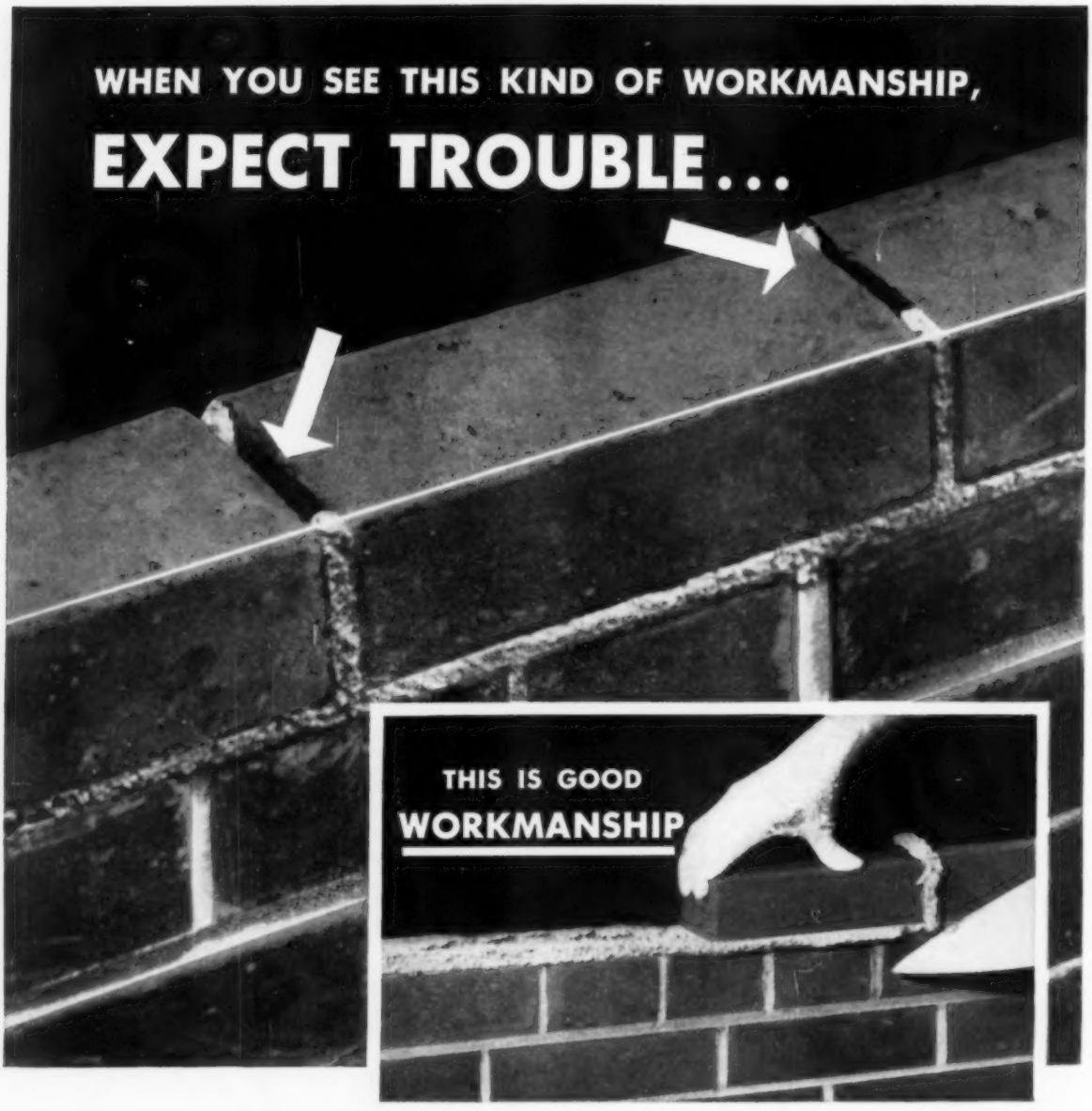
In approving a request for such an improvement, the Rent Commission will act only on the basis of a survey made by the utility company. Castle Village's survey, made by Consolidated Edison, showed that the total demand had increased from 290 kw in 1940 to 490 kw in 1954—an increase of 67 percent. As a result of this and other pertinent findings, authorization was given for a rent increase to pay for additional wiring. Drawings and specifications were prepared by Muzzillo & Tizian, Consulting Engineers, and a contract was made with Pozner Electric Company for the installation, at an approximate cost of $175,000.

Castle Village consists of five cross-shaped 12- and 13-story apartment buildings, reasonably identical; each is complete and independent as to equipment. This equipment separation was maintained in the new work. There are nine apartments on each floor of each building and the entire community includes 582 apartments, comprising 2180 rooms. A permanent rent increase of 88 cents per room per month was granted. The basis for this figure is derived from the standard regulation that the rent increase shall pay for the principal cost of the improvement within seven years. It will be seen that the additional rents will amount to about $175,000 within that time. If the money is borrowed at five percent interest, the rent increase will be absorbed for an additional six years. Cost of additional current is adjusted generally. In the case of air conditioners, the tenant will be subject to special charges.

Apartments which were previously served by not more than 22.8 amp now receive 49. Circuits have been increased in number and No. 12 wire has replaced No. 14 within apartments. A separate appliance circuit has been added in every kitchen; in each living room and master bedroom a separate air-conditioning outlet is provided near a window. Significantly, the existing conduits within the apartments were adequate to contain the new wiring. Electric cooking (ranges) had not been part of the original scheme and is not contemplated now. All wiring is assigned to other, much needed equipment.

The old main service in each building had consisted of a 4" conduit carrying four conductors of 500,000 cir-mils size. In each case this service has been duplicated by new conduit and conductors of the same size, doubling the capacity. The original vertical distribution was by two risers, one in each of two utility closets in public halls. This system remains and four new conduits (two at each utility closet) parallel the old routing. In each closet at each floor, two panel boxes, one old and one new serve the several local apartments. The fuse capacity to each apartment totals 45 amp. The separate circuits to air conditioners are fused only at the utility closet under the control of the management and this circuit is connected only upon the Rent Commission's approval of the charges. Plug fuses are used instead of circuit breakers. Service at 110 v and 220 v is brought to the panel boxes at each floor but, to date, only 110 v has been used in apartments. The only evidence of change in the apartments is a short section of exposed molding conduit leading from a nearby outlet to each new air-conditioning outlet. The halls show no change and the basement installation is extremely neat. In the electrical-service entry room the new equipment stands next to the old and jointly they serve the two riser groupings previously described.

Covington points out that by avoiding the high temperatures of conductors carrying overloads, the wire insulation may have its life prolonged as much as 15 years. This and many other advantages are sure to accrue from this well-planned installation.



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The Value of Simplified Drafting Standards

*by Hans W. Meier**

I had occasion recently to help put together a set of "Drafting Standards." As we began, someone asked, "How important are drafting standards, anyway?" That is such a provocative question we agreed to a search for the answer.

Drafting standards, we found, are among the most important tools in successful drafting-room management. At the same time, they are often the most neglected. Most large offices, and a great many smaller ones as well, have documents variously entitled "Drafting Standards," "Office Manual," "Routine Book," etc. The extent and detail range from a single sheet tacked on the wall to elaborate loose-leaf books with decimal indexes. Many offices dictate everything, including the style of lettering; others leave much to individual discretion. Symbol lists vary from a bare minimum to several pages. North arrows are generally shown (and what a variety) and frequently there are rather concise statements on how to dimension a drawing. Some manuals are followed with almost religious fervor and others . . . well, "We haven't been doing it that way lately."

The diversity of these standards, in both scope and method, is amazing. Yet, there is a common intent running through all of them: to establish a consistent approach to the drafting problem. How well they accomplish their purpose seems to depend on: (a) how well the real function of drafting has been analyzed; and (b) how wisely the standards are administered.

the function of drafting

Drafting has one function and one function only: to communicate information. In this sense it is like writing, except that the customs and symbols of drafting infinitely extend the power to communicate an idea. Try to write *un*illustrated instructions for building an Empire State Building or, for that matter, building a dog kennel. Almost impossible! There are nearly half a million ways to arrange our 26-letter alphabet into four-letter groups. The possible combinations into 10- or 12-letter groups is staggering. Yet, it takes something beyond that vocabulary to describe how to flash a simple roof coping and get the message across. The added vocabulary is composed of the lines and symbols we use in drafting. Because of this extra power, drafting provides the clearest means of transmitting information from one individual to another. Skill in drafting, then, is a skill in handling this transmitting apparatus; an ability to get a clear message across to the other fellow.

Luckily, there are not many draftsmen left who consider the drawings themselves to be an end product. This subjective approach, which ignored the building but turned out drawings as a work of art, was a phase drafting passed through a generation or more ago. The mark of skill was not so much the ability to compile information in the simplest, most accurate manner, but rather the ability to draw meaningless ornament, with duplications and refinements that contributed nothing but confusion to the over-all job.

Not for a minute should we dismiss "good drafting," but let's be sure what good drafting is. In terms of writing, again, we can compare basic skill in drafting to the basic skill of handling a typewriter (although, admittedly, drafting is a lot harder to learn). It is one thing to type a contract neatly, it is quite a different thing to compose the contract. The first requires a typist, the second requires a lawyer. A draftsman is assumed to have the basic skills of drawing clean, crisp lines and of producing disciplined lettering. That kind of "good drafting" is essential. Developing the proper contrast of lines and organizing the details on a sheet both contribute to the clarity of communication. But there is another skill required, beyond that of basic drafting. It is the skill of translating the designer's idea into meaningful drawings that tell the complete story, leave no room for doubt, and yet carry no burden of extrinsic clutter. Drafting standards should help to achieve that sort of detailing.

The function of drafting is to communicate information; the function of drafting standards is to ensure clear communication by providing consistent method. Many drafting standards are

* *Project Manager for Daniel, Mann, Johnson & Mendenhall, Architects-Engineers, Los Angeles, Calif.*

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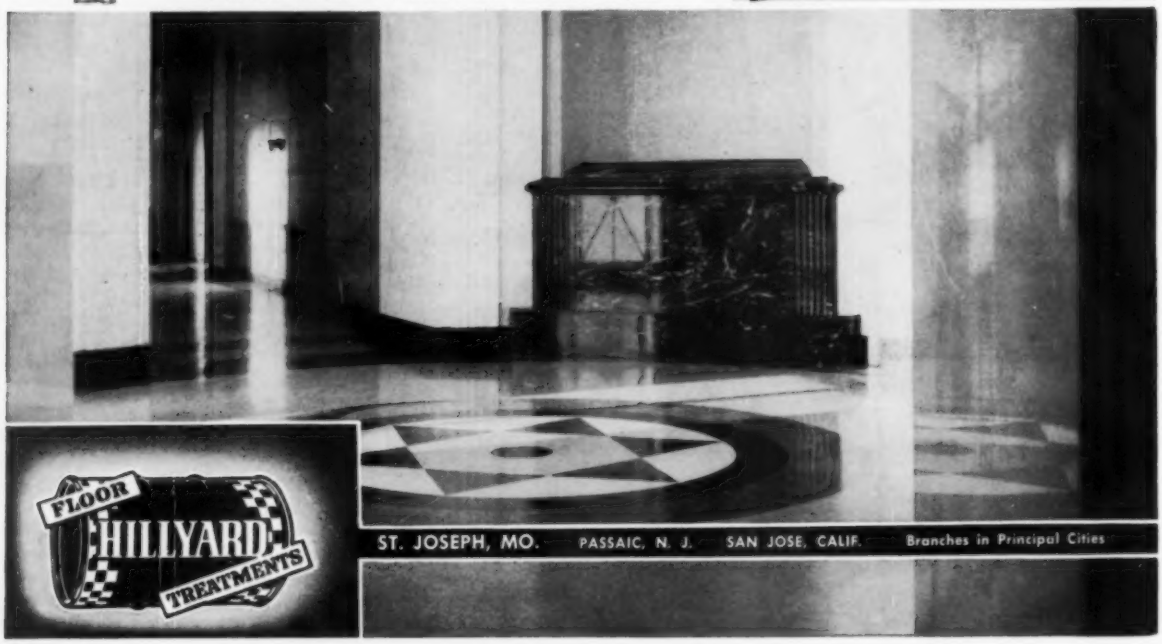

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The Value of Simplified Drafting Standards

used only in the narrow meaning, as examples of line work which basic drafting should meet. In so doing, they fall short of the much greater need: the need for establishing uniform drafting practice within the firm.

what can be standardized

We then had to ask, "In view of this philosophy, what should we standardize?" The answer, it seemed to us, depends on the policy of the individual firm.

Our policy was to save as much construction cost as possible by producing clear, thorough, and accurate drawings. Not the least important aspect of this policy was, wherever practicable, to show information in the right place, but to show it only once. This forces everyone to the same source for information and avoids the frequent discrepancies where drawings have been hastily revised. It is an effective technique but must be used with discretion. So we elaborated on the "principle of single statement," just as we elaborated on our system of organizing details on a sheet and on the various other techniques we prescribed for work in the drafting room. We found these standards to be quite intelligible to new personnel, especially when accompanied by examples of the finished product.

There is a running battle among chief draftsmen as to whether lettering can, or should be, standardized. Proponents say the value of uniform lettering throughout a job outweighs the changing of life-long habits which may be involved. They point out the general untidiness of drawings containing two or more distinct styles of lettering. They feel the lack of consistency makes it a little more difficult to read the drawings as well as taking away the chance to accent certain notes by purposely switching the style or size of lettering. Opponents of standardized lettering say that draftsmen must be allowed individuality in lettering or they lose any feeling of self-expression and thus lose interest in the work.

Perhaps here is where wise administration is really called for. The value of consistency is unquestioned. Yet, that consistency is demanded of human beings—the most notoriously individualized creatures on earth. No standard should be established which is incapable of being enforced. If an office is not ready to back up a demand for fairly consistent lettering of a particular style, then it should not "standardize" on it.

simplifying the standards

Many well-intentioned standards require almost impossible variation in line thickness, size of symbols, type of stippling, etc. The purpose—to set up a symbol with but a single meaning—is admirable. But in practice the subtlety is lost when it becomes either hard to draw, or hard to read, or both. The simpler the indication, the more chance it will be adopted, used, and correctly translated.

If a symbol is accompanied by a legend in the drawings, there is not much point in duplicating the identity every time the symbol is used in the work. Yet, so often a section is faithfully cross-hatched and then noted in half a dozen places "brick." In fact, since the word "brick" is so much easier to show than a lot of diagonal hatching, the use of hatching at all is sometimes questioned. It can be argued that hatching is an accepted symbol and thus makes a drawing easier to read. This is perhaps true, and a departure from accepted practice warrants careful study. But when hatching or stippling is used, it can be used economically and still tell the story.

Complex systems of "broken" lines to indicate piping, etc., can generally be simplified a great deal. In 1950, the Department of Defense issued its *Military Standard Mechanical Symbols* in which no less than 32 distinct types of lines are called for! Except in extreme cases, three or four types of broken lines, at the most, can tell everything that needs telling, especially if the letters S for sewer, or G for gas, etc., are shown at regular intervals in the symbol and are explained in the legend.

Simplifying drafting standards, like simplifying anything else in production, requires a patient analysis of just what has to be done. Simple drafting standards are as essential to the practice of architecture or engineering as a dictionary is to the practice of writing, and in about the same way. Properly used, they make sure everyone working on a set of drawings is speaking the same language and that the language is brief, clear, and to the point. The more simplified this language, the more chance your message will get through intact.

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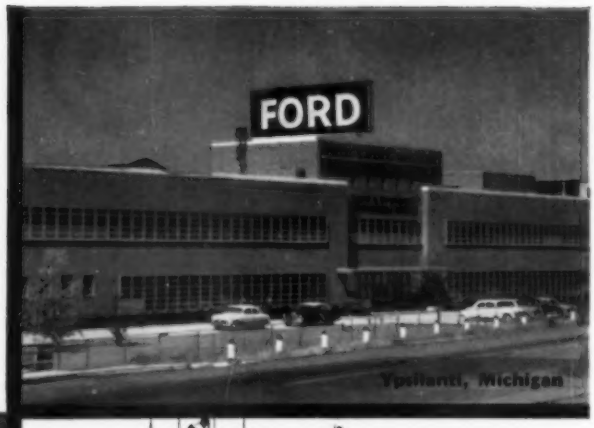

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Awards Hailed as Incentive to Better Architecture

Dear Editor: We wish to thank you and your organization for putting on this annual competition as it surely is an incentive for improving the Architecture in our country and it serves as a terrific public relations program for the architectural profession.

We have received good publicity in local papers. JYRING & WHITEMAN
Hibbing, Minn.

•

Dear Editor: We again commend P/A for being an active sponsor for Progressive Architecture.

ELMER J. MANSON
Lansing, Mich.

•

Dear Editor: Your hospitality at Detroit couldn't have been more splendid. I certainly enjoyed every minute of it. WILLIAM M. PENA
Bryan, Tex.

•

Dear Editor: Thank you for the P/A Design Award.

Eero feels the competition has become one of strategic importance in America. It really should help further the cause for good architecture.

ALINE B. SAARINEN
Bloomfield Hills, Mich.

•

Dear Editor: Let me congratulate you on a well-handled Program, and express our appreciation, not as Award winners but just as plain, everyday, old architects, to PROGRESSIVE ARCHITECTURE for the wonderful, stimulating jolt this Awards Program gives to our profession.

KARL VAN LEUVEN, JR.
Detroit, Mich.

•

Dear Editor: Congratulations on the Awards Program, and on the fine contribution which PROGRESSIVE ARCHITECTURE is making toward the emerging Golden Age of Architecture. ALEX. LINN TROUT
Detroit, Mich.

•

Dear Editor: I should like to thank you most sincerely for the enjoyable and interesting meeting in Detroit. I not only thoroughly enjoyed meeting the P/A staff, but also found it very stimulating to talk shop with a number of architects whom I had never met personally before. The occasion was well-worth going a long distance to attend, and I certainly hope that we shall earn the right to do so again sometime in the future.

FREDERICK E. EMMONS
Los Angeles, Calif.

•

Dear Editor: We have all enjoyed your excellent presentation very much. Thanks! GEORGE REED
Miami, Fla.

•

Dear Editor: I want to take this occasion to thank you for including me in your Awards Banquet in Detroit and I should like to compliment P/A on this particular program. I especially liked your statement to the effect that too often changes are made in the construction that detract from the original design and you felt that recognition should be made of the original design.

RAYMOND S. KASTENDIECK
Washington, D. C.

•

Dear Editor: I wish to take the opportunity to thank you for the splendid reception and progam which you gave us in Detroit last month. I be-

(Continued on page 14)

PROGRESSIVE ARCHITECTURE published monthly by REINHOLD PUBLISHING CORPORATION, 430 Park Avenue, New York 22, N. Y. Ralph W. Reinhold, Chairman of the Board; Philip H. Hubbard, President and Treasurer; Fred P. Peters, Vice-President and Secretary; Alfred E. Fountain, H. Burton Lowe, Merald F. Lue, D. Bradford Wilkin, William P. Winsor, Vice-Presidents; Kathleen Starke, Assistant Treasurer. Executive and Editorial offices: 430 Park Avenue, New York 22, N. Y. Subscriptions payable in advance. Subscription prices to those who, by title, are *architects, engineers, specification writers, designers or draftsmen, or employes of architectural and engineering firms,* and to government departments, trade associations, members of the armed forces, college libraries, college students, publishers, advertisers, prospective advertisers and their employes—$5.00 for one year, $8.00 for two years, $10.00 for three years. Above prices are applicable in U. S., U. S. Possessions and Canada. Latin America and Phillippine Republic—$10.00 for one year, $16.00 for two years, $20.00 for three years. All other foreign subscriptions — $15.00 for one year, $25.00 for two years, $30.00 for three years. Single copy — $1.00; special issues — $2.00 per copy. Printed by Publishers Printing Co., New York, N. Y. Copyright 1956, Reinhold Publishing Corp. Trade Mark Reg. All rights reserved. Indexed in Art Index, Architectural Index.

ABP ABC AUDITED PAID CIRCULATION

REINHOLD

(Continued from page 13)

lieve that your P/A Awards Program is doing more to stimulate independent architectural thinking than any other such effort I know of. Along with others I appreciate the strengthening of standards other than that of commercial success. I truly hope that I shall be fortunate enough to have a similar opportunity to meet you in the future.

CARL LOUIS MASTON
Los Angeles, Calif.

•

Dear Editor: I always eagerly await the January "Design Awards" publication of the coming year's leading designs. The forward look is stimulating to all who want to see architecture evolve. The designs as a group signal a moderate step forward in the refinement of the current trend. The architecture is of a high standard though not as provocative as it has been in the past.

OLINDO GROSSI, Dean
The School of Architecture
Pratt Institute
Brooklyn, N. Y.

•

Dear Editor: Again we wish to thank you and PROGRESSIVE ARCHITECTURE for the opportunity of participating in your Awards Program. We sincerely feel you are to be commended for promoting this type of program. We believe, as you, that publicity of this type aids the architect immensely; persuading the client to accept competent, Progressive Architecture.

ROBERT G. EDWARDS
Elyria, Ohio

•

Dear Editor: I want to express the sincere appreciation of both myself and Seppel Clauss for the delightful trip to Detroit. We enjoyed every minute of it and I guess we haven't yet stopped talking about the old acquaintances renewed, the new acquaintances made, and some of the more exciting Saarinen details.

JOSEPH H. YOUNG
Scranton, Pa.

•

Dear Editor: Your issue is very exciting and we are happy to be included.

HARRY WEESE
Chicago, Ill.

(Continued on page 16)

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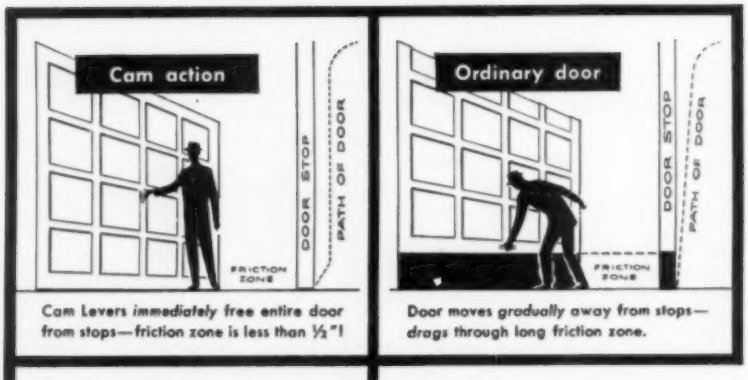

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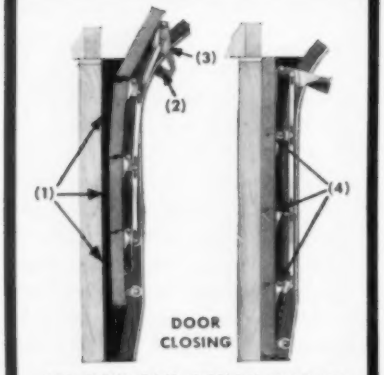

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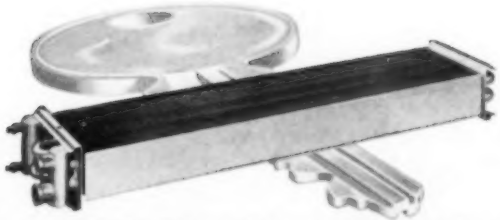
The key  **to the economy of the Nesbitt Series Wind-o-line System of Classroom Heating and Ventilating** is the Nesbitt Syncretizer's new hot-water heating element which delivers the required amount of heat by multipassing a much smaller quantity of high-temperature water than is circulated by conventional systems This means that the system may be designed for greater than the usual water temperature drops and therefore only one-half to one-third the normal amount of hot water need be circulated. This means that smaller pipes and smaller pumps are used. The copper tubing of the Wind-o-line Radiation serves as the supply and return piping for a group of classrooms or an entire wing and eliminates expensive mains and pipe trenches The Wind-o-line tubing is used as finned radiation along cold walls and windows to give the needed protection against downdraft This arrangement also eliminates much costly pipe covering As a result of these savings plus the installation economies of factory-fitted piping within the unit ventilator, your school enjoys a new standard of classroom comfort at savings of up to 20% of the construction, equipment and installation costs of conventional heating and ventilating systems employing trenches and runouts.

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p/a views

(Continued from page 14)

Dear Editor: We would like to express our thanks to you and PROGRESSIVE ARCHITECTURE for the Award Citation on the Gilliam County Courthouse.

After receiving so many congratulations in Klamath Falls, I realized that these Awards do another good besides giving our clients a little more confidence in what we propose; it also means that in order to maintain this respect we will have to be more imaginative in the future to achieve a design freedom better expressed by the other Award Winners—it is an excellent pressure for the profession to have hanging over our collective heads.

MURDO D. MORRISON
Klamath Falls, Ore.

pleased: horrified

Dear Editor: I was pleased to see the excellent handling of the MIT Chapel in January 1956 P/A.

I was horrified, however, at the type face used at the top of page 65 for the P/A News Survey. Maybe you have used it before and I simply haven't noticed it—I just thought I would pass along this little comment.

ROBERT B. NEWMAN
Cambridge, Mass.

on teamwork

Dear Editor: A copy of your P.S. from November 1955 P/A crossed my desk this afternoon. You happened to cover a subject which has been discussed in great detail among ourselves, that is, the importance of the client in the so-called "Building Team." I personally agree with you that it is a dangerous trend of some architectural magazines to establish the theory of building team in detriment to the professional standing of the architect.

It is understandable to us in the advertising profession that teamwork is necessary and desirable. The advertising team is, of course, made up of the advertising manager, sales manager, and the advertising agency. Although the sales manager is an important member of the team, it would be an injustice to us to say that he is the prime factor in determining advertising policy or in the selection of media. The advertising manager consults with the sales manager to determine his needs and his objectives and then, with that information, constructs an effective advertising program.

As you pointed out in your editorial, the building team works in the same manner. The professional architect and engineer must, of course, consult with the client and

(Continued on page 20)

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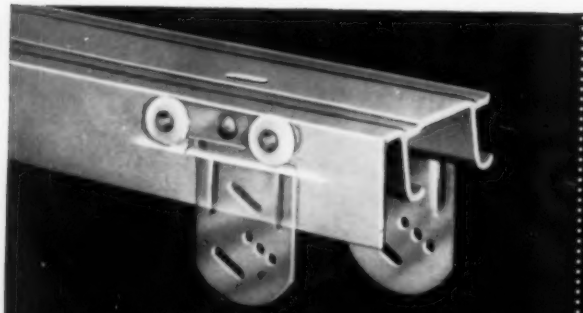

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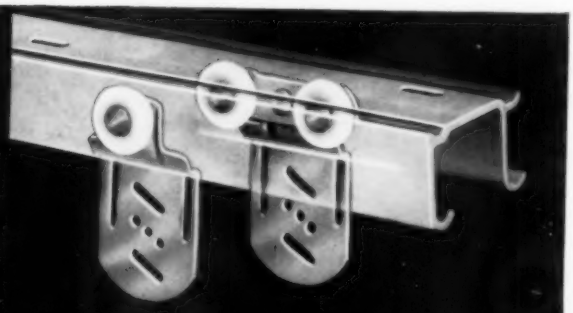

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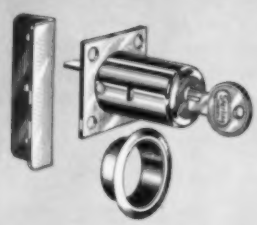

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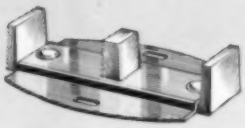

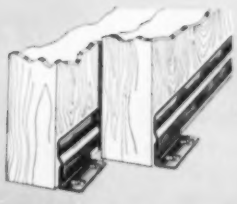

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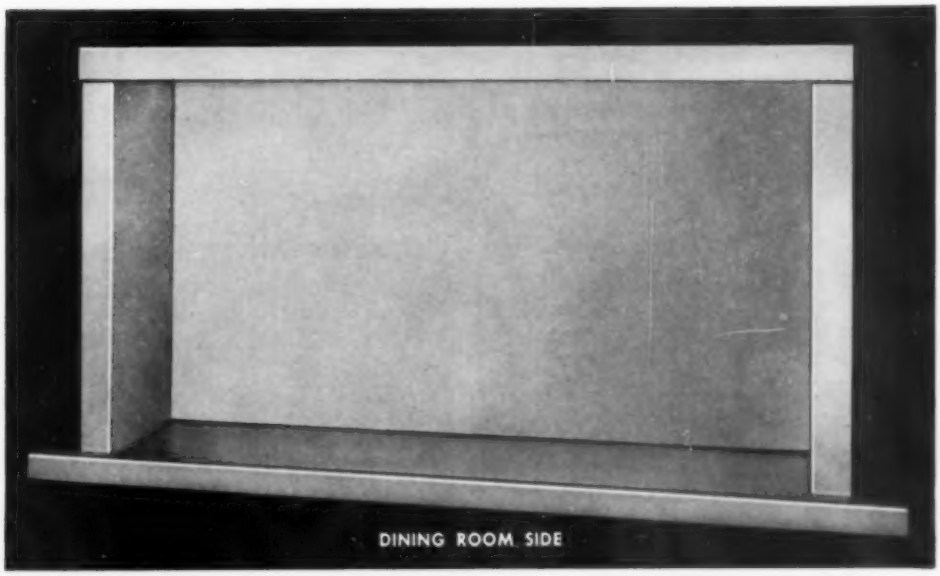

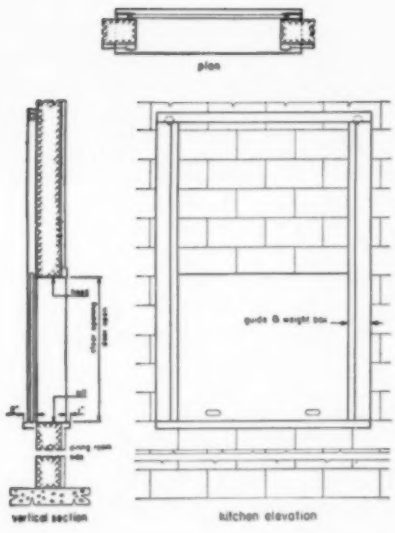

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Offices in Principal Cities

PEELLE MOTORSTAIRS • INDUSTRIAL DOORS • FREIGHT ELEVATOR DOORS • DUMBWAITER DOORS

OPPORTUNITY FOR SALES REPRESENTATIVES to handle the Peelle Pass Window. Several choice territories open. Please write.

(Continued from page 16)

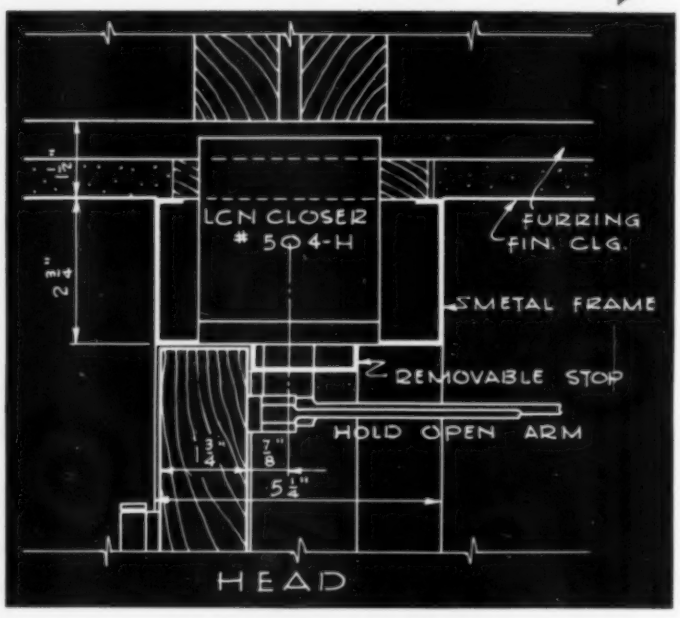
determine his needs and requirements. But I agree that it would be dangerous to say that the client is the prime factor in preparing the designs and specifications. It seems inconceivable to me that any client could have the technical training or esthetic ability to influence greatly the design or specification of a building. This argument is not of a primarily academic interest since as a major building materials manufacturer we must determine who are the primary specifiers and buyers. Without this knowledge, our advertising might be directed to the wrong people and, therefore, cause considerable waste of money. I hope that you will have a chance to give your editorial wide circulation so that the other side of the story can be made known.

WILLIAM M. DOMIN
Pittsburgh, Pa.

respect experience!

Dear Editor: Do you think you could persuade Prof. Anthony Ellner, Jr., of Clemson College, to submit his letter (VIEWS *June 1955 P/A*) for publication to reach as many educators as possible? Educators—let's call them teachers! whether in private, public, elementary, secondary schools, or universities—I feel certain would like to examine Professor Ellner's theories. Surely the training staffs in our military organizations should be included; and why should we leave out the teachers of theology?

"Our students come to us with 18 years' experience with 'Man in His Environment' and to treat this student as if he was just born ——." My observation as a teacher, and now as an outsider of the profession, compels me to make this suggestion: Does not the teacher of the First Graders, the little people that come to her with 5, 6, or 7 years experience with "Man in His Environment," accept the fact they are people who know something and have had emotional experiences—mirth, excitement, anger, disappointment, great elation, guilt, the supreme satisfaction of accomplishment, or being innocent at a critical time, curiosity, and so on? The primary teacher teaches her class by determining what the members know and then proceeds, step by step, to extend their knowledge, develop new skills, help them harvest the great satisfactions to be had from accomplishment, exploring new worlds and adult approval. GREVILLE B. HARRISON
Swift Current, Saskatchewan



CONSTRUCTION DETAILS
for LCN Overhead Concealed Door Closer Installation
Shown on Opposite Page

The LCN Series 500 Closer's Main Points:

1. Efficient, full rack-and-pinion, two-speed control of the door
2. Mechanism entirely concealed; arm visible on inside of an out-swinging door
3. Hydraulic back-check prevents door's being thrown open violently to damage door, walls, etc.
4. Double lever arm provides maximum power to overcome wind and drafts
5. Arm may be hold-open type, 90° to 140° or 140° to 180°

Complete Catalog on Request—No Obligation
or See Sweet's 1956, Sec. 18e/L

LCN CLOSERS, INC., PRINCETON, ILLINOIS

Harold Spitznagel & Associates, *Architects*

MODERN DOOR CONTROL BY *LCN* · CLOSERS CONCEALED IN HEAD FRAME

FIRST CONGREGATIONAL CHURCH, SPENCER, IOWA

LCN CLOSERS, INC., PRINCETON, ILLINOIS

Construction Details on Opposite Page

Factors to help you decide . . .

WHICH FLOOR GOES WHERE?

With the large variety of resilient flooring materials now available, architects may find difficulty in selecting the right resilient floor for installation over a particular type of subfloor. There are relatively few cases in which only one material will do a specific job. However, consideration of such factors as moisture and service conditions can help guide the selection of a resilient floor—no matter what subfloor is involved.

MOISTURE CONDITIONS

There are three main types of moisture conditions which should be taken into account in choosing a resilient floor.

Concrete subfloors. The moisture content of concrete above, on, or below grade may seriously affect resilient flooring materials. However, any Armstrong resilient floor may be installed on suspended concrete which is known to be completely dry. The diagram below shows the suitability of Armstrong Floors for installation over grade-level or below-grade concrete.

Wood subfloors. Wherever a wood subfloor is constructed over a crawl space, there is danger of moisture damage and consequent warpage to the subfloor, resulting in harm to the resilient floor itself. Crawl spaces should therefore be at least 18" high and cross ventilated. Any of the various Armstrong resilient floors may be installed over wooden subfloors in good condition and adequately suspended and ventilated.

Surface moisture. Around drinking fountains, soda fountains, and in other areas where excessive water is likely to be spilled on the floor, moisture may find its way through

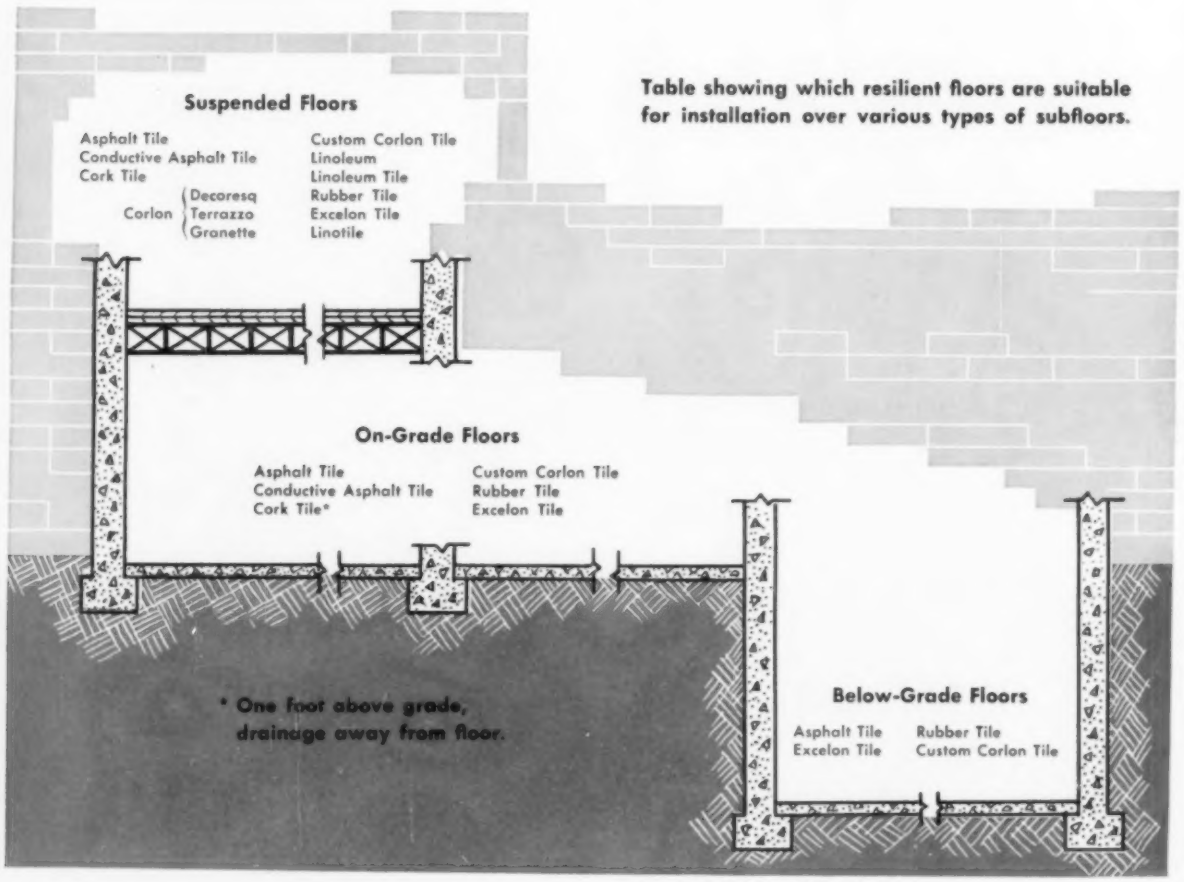


Table showing which resilient floors are suitable for installation over various types of subfloors.

Armstrong FLOORS

LINOLEUM PLAIN · JASPÉ · SPATTER® · TEXTELLE® · DECORAY® · RAYBELLE® · ROYELLE® · MARBELLE® · TOWN HOUSE® INLAID · CRAFTLINE® INLAID · EMBOSSED INLAID · STRAIGHT LINE INLAID

the seams in the floor and attack the adhesive. In the case of Cork Tile, excessive surface moisture may damage the floor itself. In areas where such conditions of surface moisture are encountered, the floors recommended for on-grade installation over concrete subfloors—Excelon Tile, Asphalt Tile, Rubber Tile, and Custom Corlon Tile—will generally be found to give more satisfactory service. Under these conditions, the floors should be installed with waterproof adhesives as specified.

SERVICE CONDITIONS

Resilient flooring materials should always be selected with service conditions in mind, since the wear a floor receives has great bearing on how long it will retain its utility and beauty. Just as service conditions may range from light wear to constant foot traffic and frequent cleaning—so do resilient flooring products vary in their abilities to withstand harsh treatment.

Light or heavy traffic. In residential installations, wear is not usually an important factor in the choice of a resilient flooring material. In most cases, these floors will be replaced for decorative reasons long before they wear out. Here, most resilient flooring products are satisfactory from the standpoint of wear, and the final choice is often based on price, preference for a design or pattern, or other considerations such as grease resistance. In commercial installations, on the other hand, excessively heavy traffic sometimes makes wear a limiting factor in the selection of a flooring material. Where this situation exists, the use of heavier gauge products is indicated. Materials that provide the necessary superior wearing characteristics include Armstrong Linotile, Heavy Gauge Linoleum, the ⅛″ gauge of Rubber Tile, Custom Corlon Tile, Asphalt Tile, and Excelon Tile, and the 3/16″ and 5/16″ gauges of Cork Tile.

Exposure to strong sunlight. The increasing use of glass curtain walls in commercial structures and the enlargement of window areas in homes represent a severe test of any resilient flooring material. Exposure to strong sunlight – by causing fading, shrinking, brittleness, or chalking – may eventually affect the performance and appearance of many types of resilient floors, but resilient flooring in sheet form and Linotile are considered especially resistant to this type of potential damage.
Pigments are, of course, the limiting factor in the fade-resistant properties of resilient flooring materials, but great improvement in color stability has been made in recent years, especially where reds and blues are concerned. Predominantly dark patterns, however, still show best light resistance. In areas subject to strong sunlight through plate glass, as in showrooms, the sun's actinic rays create a slight fading on yellows, reds, and pinks.

Maintenance. While ease of maintenance is a characteristic of resilient floors in general, some require less care than others. Naturally it is to the architect's advantage to specify those which are easiest to clean for heavy traffic areas. The list which follows may be used as an approximate guide to the amount of maintenance normally required by the various Armstrong Floors, although it must be remembered that ease of maintenance is somewhat affected by the color and pattern of the floor selected, as well as by its physical properties. Starting with the easiest to maintain—Linotile, Custom Corlon Tile, and Excelon Tile—the other floors rank in this order—Corlon sheet flooring, Linoleum, Rubber Tile, Asphalt Tile, and Cork Tile.

OTHER FACTORS IN THE CHOICE OF RESILIENT FLOORS

Apart from decorative effects, patterns, and colors, which are largely a matter of individual choice—there are a number of other factors to be considered in selecting a resilient flooring material. Some of the more important are underfoot comfort, recovery from indentation, noise on impact, electrical conductivity of the floor, ease of repairing damage, and the effect of seams.

Resilience. The resilience of any particular floor affects three things: its underfoot comfort, its ability to recover from the indentation caused by foot traffic and other short-term loads, and the amount of noise generated by foot traffic. Of these, underfoot comfort is probably the most important consideration—especially in retail stores, hospitals, restaurants, or similar establishments where prolonged periods of standing or walking tend to cause fatigue and impair the efficiency of personnel. Here is a list of Armstrong Floors, rated in order of resilience, most to least: Cork Tile, Rubber Tile, Custom Corlon Tile, Linoleum, Sheet Corlon, Linotile, Excelon Tile, and Asphalt Tile.

Electrical conductivity. In buildings where explosives or combustible materials are handled, it is desirable to have a floor capable of conducting away accumulated static charges. At the same time, such a floor should be non-sparking on impact. A special Conductive Asphalt Tile has been developed by Armstrong for this type of installation. This floor has a heavy asphalt base, and its resins and fillers are specially formulated to produce a non-sparking material with exceptionally high electrical conductivity. However, this type of resilient floor is not recommended for use in hospital operating rooms or paint spray rooms.

Repairing damage. Occasionally, an accident may damage a portion of floor so seriously that replacement becomes necessary. All resilient floors are more easily repaired than marble, terrazzo, or concrete. If the damaged area is small, replacement is easier and less expensive with a tile floor than with sheet goods. Cuts and tears in Corlon can be readily heat-sealed with a soldering iron. Linoleum can be patched with lacquer and linoleum binder.

Seams. The small number of seams and joints in sheet flooring allows few places for accumulations of dirt or corrosive materials. Precision factory cutting of Armstrong Resilient Tiles assures tight joints and close-fitting edges, making them easy to maintain.

ARMSTRONG CORK COMPANY makes all types of resilient floors for all types of interiors. Almost any flooring problem can be met with one or more of the floors in the Armstrong Line. As a result, we have no special bias toward any one type and can offer architects impartial recommendations on any flooring problem. Our main interest is to aid you in making a sound flooring selection.

Armstrong sales representatives throughout the country have wide experience and training in resilient flooring. They will be glad to consult with architects and make specific recommendations for individual jobs. Outright specifications for Armstrong materials will result in competitive bidding from a number of flooring contractors and at the same time assure the client of top-quality materials.

For helpful information on any flooring question, just call your nearest Armstrong District Office or write direct to Armstrong Cork Company, Floor Division, 163 Watson Street, Lancaster, Penna.

PLASTICS

CUSTOM CORLON® TILE
EXCELON® TILE
DECORESQ® CORLON
GRANETTE® CORLON
TERRAZZO* CORLON

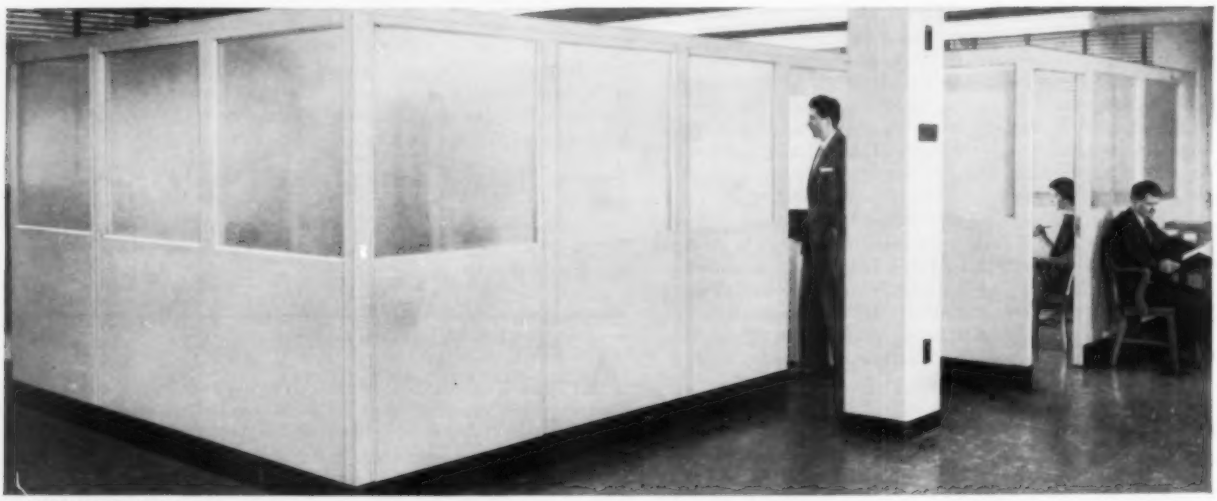
RESILIENT TILES

ASPHALT TILE
Standard
Greaseproof
Conductive
RUBBER TILE
LINOTILE®
CORK TILE
CUSTOM CORK TILE
LINOLEUM TILE

*TRADE-MARK

NEW DESIGN MORE FLEXIBILITY FEWER PARTS

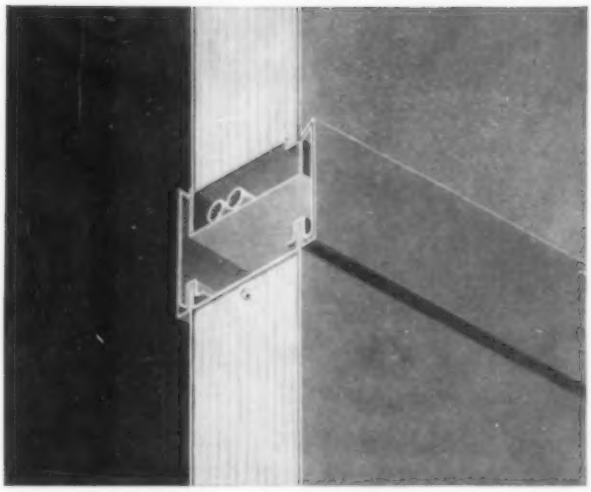
VMP Royal Flush MOBILWALLS now offer snap-on



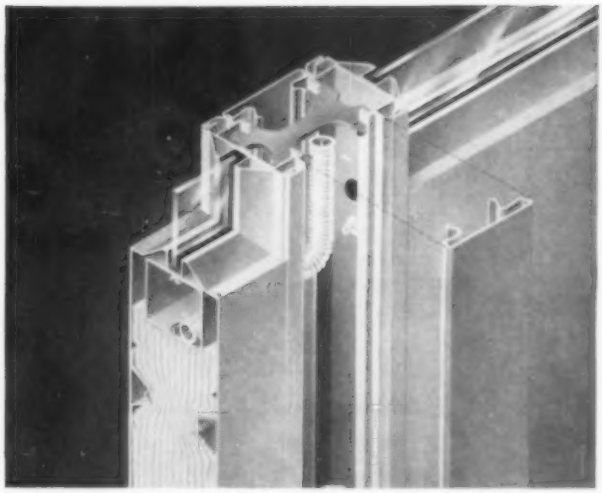
FLUSH PANELS of the RF line make styling clean and restful—simplify both design and maintenance. Installation is made in a few hours by trained local crews. Wherever installed, VMP MOBILWALLS make a major contribution to efficiency and attractiveness.

A new design of movable, metal office partitions—VMP's greatly improved RF ROYAL FLUSH MOBILWALLS—gives architects the opportunity to build-in dignity and simplicity, and to gain many added functional features. New-style RF partitioning blends and *interlocks* perfectly with previous VMP installations, presents no special detailing or erection problem.

The high-style RF line has flush-surfaced, non-recessed panels; 3″ thickness with new increased rigidity and stability; extensive provisions for faster installation and wiring. Made in both all-steel and steel-and-glass combinations, RF MOBILWALLS can be matched to the client's color and texture selection. Like all VMP MOBILWALLS, RF metal surfaces are thoroughly cleaned and treated for superior resistance to corrosion, then primed, and color coated with baked enamel. They keep looking new—for years. Study the details, then talk to your VMP representative!

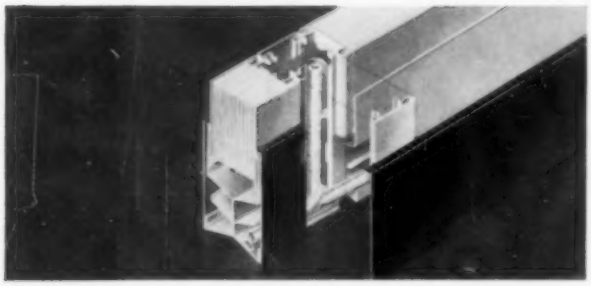


SNAP-ON MOLDINGS AT CORNICE are truly aligned to keep top edges firm and even. They are modern, flush, and provide a hanger edge for pictures. The cornice thus formed is adaptable to receive mineral board or steel top filler. You are assured that the installation will be attractive and uniform, and the architect's work simplified.

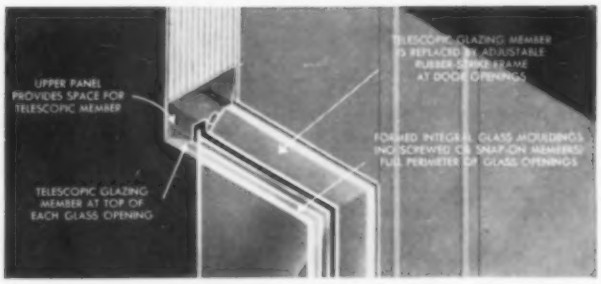


EXTREMELY RIGID CONSTRUCTION—New RF MOBILWALLS are factory assembled and functionally formed with vertical edge members extending from floor attachment to rigid cornice construction. Link plates provide a four-point field assembly for panel unit edges. No strength is sacrificed by slotting for clips or linkage members.

cornices, improved wiring facilities, telescopic glazing



EASY ACCESSIBILITY OF WIRING is an added benefit when you use RF partitions. Wiring can be laid continuously through the bases and posts. Additional wiring facilities are available in the cornice, chair rail, transom rail . . . even through the panel itself. Wiring is accessible without tools. No exposed wiring—no dirt or delay.



NEW VMP TELESCOPIC GLAZING speeds insertion of glass. No extra parts to fumble with or lose—you just insert glass, then putty! *Telescopic* action of new VMP glazing channels hold member firmly in place. Both faces of unit are identical; exposed screw heads are eliminated. ALL VMP MOBILWALLS WILL HAVE THIS EXCLUSIVE FEATURE!

New VMP Partitioning Helps for Architects!

Virginia Metal Products, inc.
ORANGE, VIRGINIA
Subsidiary of Chesapeake Industries, Inc.

Virginia Metal Products, Inc., Dept. PA-3, Orange, Virginia

- ☐ Have nearest VMP partitioning specialist see me.
- ☐ Send folder "Simplified Office-Area Planning with Ratio-Delay Studies and VMP MOBILWALLS" with manual.

Send VMP descriptive literature:

- ☐ MOBILWALLS in Hospitals
- ☐ MOBILWALLS in Schools
- ☐ New VMP MOBILWALL Jrs.
- ☐ VMP MOBIL-LAB-WALLS
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YOUNGSTOWN BUCKEYE CONDUIT

HOT GALVANIZED: High quality steel pipe is first thoroughly cleaned by pickling in acid, then immersed in a bath of molten pure zinc. After threading, a coating of tough, transparent enamel is baked on —providing double corrosion protection of zinc and enamel —inside and out.

ELECTRO GALVANIZED: After being threaded, reamed and carefully inspected, this conduit is cleaned by pickling, then uniformly coated outside with zinc. A coat of tough, elastic black enamel is then baked on the interior, providing protection as well as a smooth raceway for trouble-free wire pulling.

BLACK ENAMELED: A protection, black enamel coating is applied inside and out by dipping. When a uniform thickness of this coating has been achieved, it is then baked to form a tight, elastic, high lustre finish—guarding against cracking in bending or forming operations during installation.

ELECTRICAL METALLIC TUBING: Absolute uniformity of weight, wall thickness and concentricity, plus protective outside coating of pure zinc and baked-on elastic enamel interior, forms this modern mirror-smooth raceway. Lightweight, easy to handle, no threads to cut, bends readily and assures safe, economical, life-time electrical installations.

Proven — THROUGH THE YEARS

Yes, Youngstown Buckeye Conduit has been proven through the years by thousands of owners and by leading Electrical Contractors the world over . . . proven that it is easy to bend . . . easy to fish wires through . . . and economical due to greater corrosion resistance that means longer, trouble-free life in actual service. Youngstown Buckeye Conduit has also proven that it pays dividends through lower installation costs and greater efficiency. Add to these many features the fact that Youngstown Buckeye Conduit is manufactured "from iron ore to the finished product" by ONE integrated steel company and you know why it Is prefered by so many.

CONDUIT

Size	Nominal Diameter (Inches) Internal	External	Nominal Wall Thickness (Inches)	Threads Per Inch	Feet Per Bundle
½	.622	.840	.109	14	100
¾	.824	1.050	.113	14	50
1	1.049	1.315	.133	11½	50
1¼	1.380	1.660	.140	11½	30
1½	1.610	1.900	.145	11½	30
2	2.067	2.375	.154	11½	
2½	2.469	2.875	.203	8	
3	3.068	3.500	.216	8	
3½	3.548	4.000	.226	8	
4	4.026	4.500	.237	8	
5	5.047	5.563	.258	8	
6	6.065	6.625	.280	8	

Conduit furnished in 10-foot lengths, threaded both ends with one coupling.

COUPLINGS

Size	Outside Diameter (Inches)	Length (Inches)	Pieces Per Carton
½	1.063	1.562	100
¾	1.313	1.625	50
1	1.576	2.000	50
1¼	1.900	2.062	50
1½	2.200	2.062	50
2	2.750	2.125	25
2½	3.250	3.125	
3	4.000	3.250	
3½	4.625	3.375	
4	5.000	3.500	
5	6.296	3.750	
6	7.390	4.000	

ELBOWS

Size	Radius (Inches)	Offset (Inches)	Pieces Per Carton
½	4.000	6.500	50
¾	4.500	7.250	50
1	5.750	8.750	25
1¼	7.250	10.500	20
1½	8.250	11.750	15
2	9.500	13.500	10
2½	10.500	15.000	
3	13.000	18.000	
3½	15.000	20.500	
4	16.000	22.000	
5	24.000	31.000	
6	30.000	37.500	

ELECTRICAL METALLIC TUBING

Size	Nominal Diameter (Inches) Internal	External	Nominal Wall Thickness (Inches)	Feet Per Bundle
½	.622	.706	.042	100
¾	.824	.922	.049	100
1	1.049	1.163	.057	100
1¼	1.380	1.510	.065	50
1½	1.610	1.740	.065	50
2	2.067	2.197	.065	30

EMT furnished in 10-foot lengths, without couplings.

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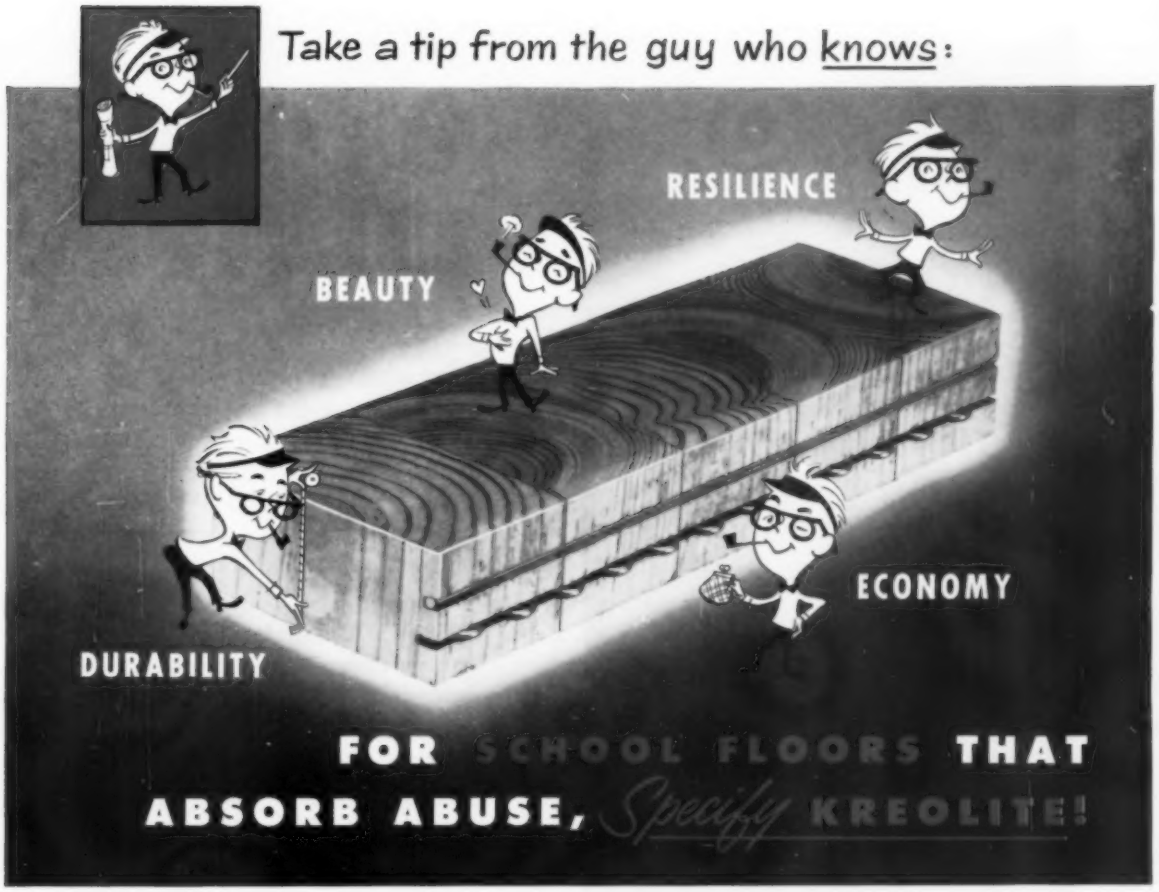
BUCKEYE YOUNGSTOWN CONDUIT



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For only Kreolite combines the beauty of natural finish woods with the rugged durability of end grain construction to provide flooring that withstands the constant abuse common to school gymnasiums and vocational shops.

Resilient Kreolite is economical to install, easy to maintain.

You, too, can realize the benefits from this remarkable flooring material. Just fill out the coupon below.

KREOLITE FLEXIBLE STRIP END GRAIN WOOD BLOCK FLOORS

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Please send me a free sample and complete specifications of Kreolite Flexible Strip End Grain Wood Block Flooring.

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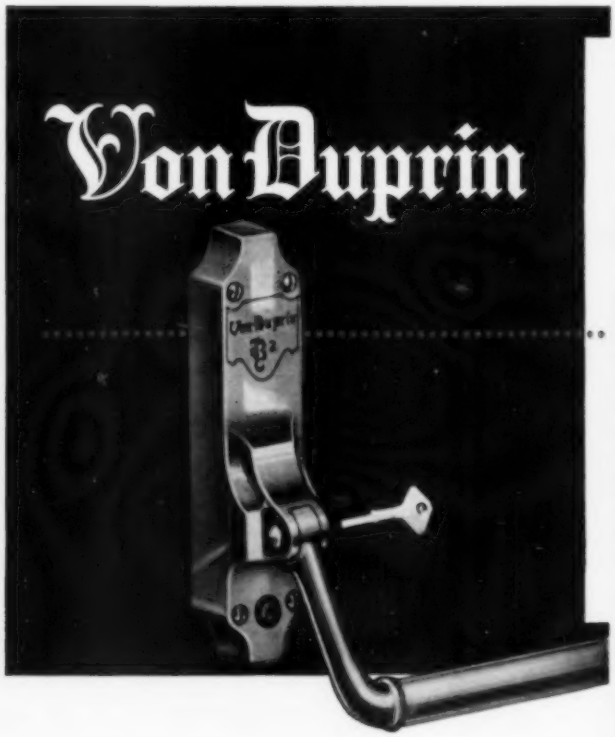
"THE SAFE

Increasing numbers of architects and other safety-minded officials the country over specify Von Duprin exit devices to provide "the safe way out!" And for good reason: Von Duprin's unequalled record of performance! Even under the most adverse conditions, these devices operate efficiently . . . with only normal maintenance.

Since originating fire and panic exit devices in 1908, Von Duprin has consistently paced the field in new designs, incorporating new materials and production methods.

Whether effectively handling the daily flow of traffic . . . or standing ready for that "once-in-a-lifetime" emergency, Von Duprin-equipped doors are your answer to safe, sure exit.



WAY OUT!"

The vertical rod Type B² device, illustrated here, is a part of the complete Von Duprin line of exit devices and auxiliary hardware designed to meet every exit requirement.

For complete information, or for expert advice on specific exit needs, call on your Von Duprin "Exit Specialist"—either a factory representative or a selected builders' hardware distributor.

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why invite FIRE?
KEYMESH lath for overall reinforcement. Made of galvanized woven wire. Especially recommended for ceiling construction.
KEYCORNER strip lath, preformed to fit snugly in corners. Lies flat when applied to joints. Galvanized to prevent rust streaks.
KEYBEAD corner lath with precision formed bead for outside corners. Open mesh assures strong, solid plaster corners.

you multiply fire resistance for pennies per square foot with

KEYMESH

Some types of walls and ceilings invite fire.

When you use lath and plaster, plus KEYMESH, you cut fire hazard immeasurably. Just compare the difference.

With frame construction, a ceiling with exposed joists is gone in 15 minutes. Finished with gypsum lath, lightweight aggregate plaster and Keymesh, it stands up an hour and 38½ minutes.

With open web steel joists, the ceiling fails in 7 minutes when joists are exposed. Add gypsum lath and 1" of lightweight aggregate plaster over KEYMESH and the ultimate fire resistance is 4 hrs. and 26 min.

With most types of light construction you'll find that lath and plaster with KEYMESH reinforcement can make the difference between "heavy loss" and "light damage" to buildings. You can do this at negligible cost . . . for pennies per square foot of finished surfaces.

Firesafety is not the only advantage of using KEYMESH reinforcing lath. Beauty, durability, and economy must be part of everything you design. With Keymesh you get all these plus other important advantages for your clients such as lower insurance rates and complete adaptability for any type of decoration.

Before you specify or build again, weigh these facts.

Fire Test Results on various types of construction by authoritative Testing Laboratories

CEILING CONSTRUCTION WOOD JOIST FLOORS	ULTIMATE FIRE RESISTANCE	PROTECTION OF JOISTS
Exposed joists.	15 min.	None
Gypsum wallboard ½" thick finished with casein paint.	25 min.	15 min.
Gypsum lath, ½-in. of gypsum lightweight aggregate plaster reinforced with **KEYMESH**-type reinforcing lath.	1 hr. 38½ min.	36 min.

WALL CONSTRUCTION ON WOOD FRAMING	ULTIMATE FIRE RESISTANCE
½" fiberboard.	5 min.
Metal lath with ¾-in. sanded gypsum plaster.	15 min.
Tongue-and-grooved wood.	20 min.
⅜-in. perforated gypsum lath with ½-in. sanded gypsum plaster.	30 min.

CEILING CONSTRUCTION STEEL JOIST FLOORS	ULTIMATE FIRE RESISTANCE
Ceiling unprotected.	7 min.
Ceiling of gypsum lath and ½" lightweight aggregate gypsum plaster.	55 min.
⅜" gypsum lath covered with 1½" of gypsum plaster with lightweight aggregate.	1 hr. 43 min.
Gypsum lath and ½-in. gypsum plaster with lightweight aggregate reinforced with **KEYMESH**-type galvanized reinforcing lath.	3 hrs. 28 min.
⅜" gypsum lath, reinforced with 20-gauge, 1" **KEYMESH**-type lath; then covered with only 1" of lightweight aggregate gypsum plaster.	4 hrs. 26 min.

STEEL COLUMNS	ULTIMATE FIRE RESISTANCE
Structural Steel, unprotected 10 sq. in. min. area of steel.	15 min.
Gypsum lath, one layer, ⅜" perforated, ½-in. gypsum plaster mixed with lightweight aggregate.	1 hr.
One layer ¾-in. perforated gypsum lath, 1-in. thickness of gypsum plaster, 100 scratch, 100 brown, mixed with lightweight aggregate.	2 hrs.
Two layers ½-in. long-length gypsum lath, 1½-in. gypsum plaster mixed with lightweight aggregate. *Lath wrapped with one layer 20 gauge galvanized 1-in.* **KEYMESH**-*type reinforcing lath.*	4 hrs.

KEYSTONE STEEL & WIRE COMPANY

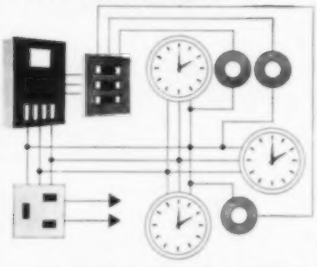
Peoria 7, Illinois

KEYMESH • KEYCORNER • KEYBEAD • KEYWELD
KEYSTONE NAILS • KEYSTONE TIE WIRE
KEYSTONE NON-CLIMBABLE AND ORNAMENTAL FENCE

Keymesh is a registered Trademark of the Keystone Steel & Wire Company

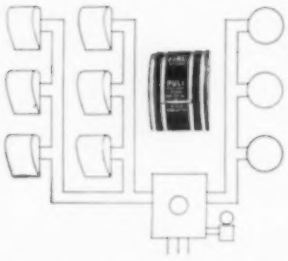
With EDWARDS school programming
...they're safe, sound,

EDWARDS SYNCHRO-MATIC CLOCK AND PROGRAM SYSTEMS



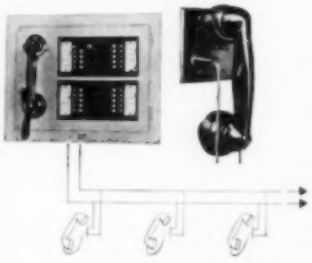
The simplest centrally controlled system. Engineering perfection of the Telechron® motor obsoletes hourly correction... eliminates a master clock... provides simultaneous reset instantly after a power failure—automatically, or by the mere flick of a switch.

EDWARDS SCHOOL FIRE ALARM SYSTEMS



Edwards offers "hug the wall" look plus absolute dependability of performance in a new "foolproof" single action pull lever station that's factory tested 100 times. Can be combined with the newest automatic system for complete protection 24 hours a day.

EDWARDS INTERCOMMUNICATION SYSTEMS



Edwards new Intercommunication System when combined with an Edwards Program system operates without a switchboard... provides privacy and flexibility. Utilizing the same electric conduit results in an inexpensive installation that is virtually maintenance-free.

and protection systems

and in good hands!

EDWARDS SIGNAL DEVICES

Edwards complete line of bells, horns and buzzers give the correct tone and intensity to overcome all noise conditions. The "Adaptabel", typical of Edwards specialization, has no moving contacts or armatures, with automatic compensation for plunger wear.

You make certain it's a "once in a lifetime" installation when you specify Edwards! The people at Edwards are perfectionists... and their skill comes from over 80 years specialization in one field only —electrical signaling, communication and protection equipment.

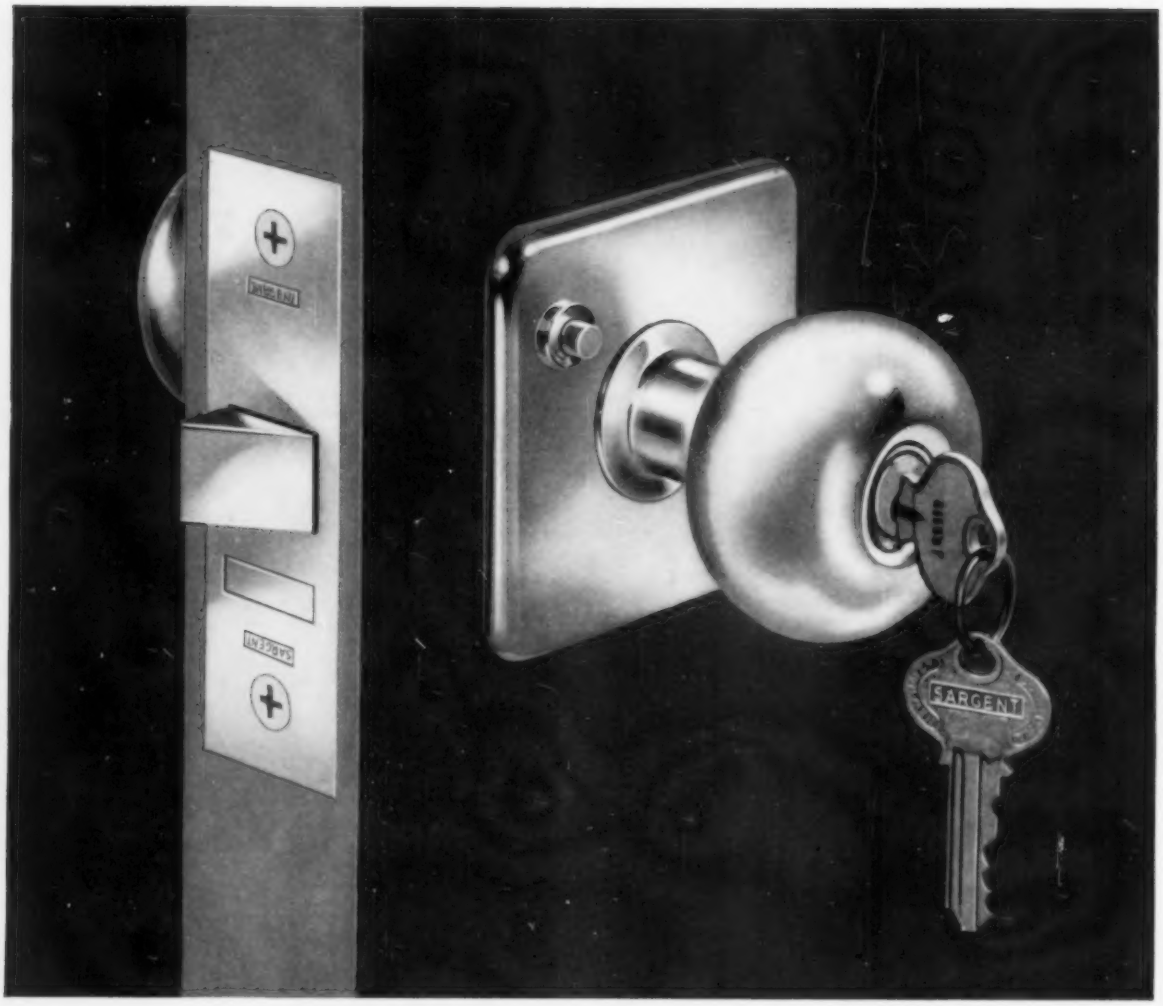
Concentration on specific products means quality and dependability unmatched by other manufacturers! Edwards quality assures long life for your equipment with little, if any, maintenance and servicing.

It pays to specify the best... make sure it's Edwards. Ask your Edwards man, your Electrical Distributor or write: Edwards Company, Inc., Norwalk, Conn. (In Canada: Owen Sound, Ont.)

EDWARDS

Specialists in Signaling since 1872

DESIGN
DEVELOPMENT
MANUFACTURE



NOW...the Sargent Integralock in

STAINLESS STEEL!

The answer to owners' demands for permanence and beauty

Sargent has done it! Leads the field again! Gives you the already famous Integralock . . . *in a shining armor of stainless steel!*

This gives you the lock you need to blend with modern stainless steel trim. The stainless steel knobs and escutcheons do not require polishing—a real operating economy. The hard, durable alloy resists dents and mars for a lifetime of lasting beauty. Available in polished or satin surface at standard Integralock prices.

All that . . . *and* all the famous Sargent Integralock features, too! The exclusive, patented Sentry Bolt, positioned *horizontally* for more security. *Plus* locking set stops . . . key-in-knob convenience.

Call your Sargent representative! Be one of the first to see the Integralock . . . in *stainless steel*. Or write Sargent direct for complete information. Dept. 15C.

SARGENT of New Haven

SARGENT & COMPANY

New York • NEW HAVEN 9, CONN. • Chicago

IMPORTANT NEW PROOF THAT

LUDMAN Auto-lok AUTOMATIC LOCKING WINDOWS

LUDMAN LEADS IN WINDOW ENGINEERING

THIS GREAT WINDOW HAS ESTABLISHED STANDARDS BY WHICH ALL ALUMINUM AWNING WINDOWS MUST BE MEASURED

No matter what the standards by which aluminum awning windows are measured, the Ludman Auto-Lok always emerges as first choice. For this superb window established such high standards in its field, that in all its years of top performance no other window has come close enough to give the phrase "or equal" any meaning. This product clearly stands alone in the field of awning windows.

Auto-Lok is the *only* window that fully meets *all* of the ten most important requirements in a window that experts* agree are essential. Here is a window that only Ludman can produce . . . . the foundation upon which the fine family of Ludman products has been built.

The Auto-Lok Window permits complete control over both the quantity and the quality of ventilation. Fresh air is assured, even when it's raining. The bottom night vent **insures** ventilation with complete protection . . . . protection from the elements . . . . protection from prowlers.

The Auto-Lok Window is the tightest-closing window ever made — and *only* Auto-Lok will *stay tightly closed* for the life of the building without the periodic adjustment required by all other awning windows. Completely weatherstripped, the Auto-Lok Window is an ideal solution when True Climate-Control is sought. *Permanently weathertight* — it seals out both heat and cold, and substantially reduces demands upon Air-Conditioning systems and Heating plants.

Quality-Controlled from raw aluminum to finished window, the Auto-Lok is the most nearly perfect window the resources of Ludman Corporation can produce.

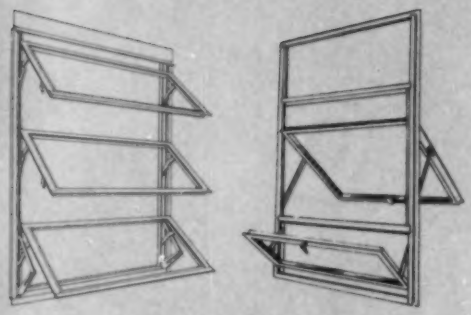
**Geoffrey Baker and Bruno Funaro in "Windows in Modern Architecture"*

AUTO-LOK WINDOWS CONFORM TO THE RECOMMENDATIONS OF THE AMERICAN INSTITUTE OF ARCHITECTS, MODULAR COORDINATION OFFICE.

(SEE NEXT PAGE) . . . . . .

IMPORTANT NEW PROOF THAT

LUDMAN
LEADS IN *window engineering*



"... your aluminum awning and intermediate projected windows are in accord with my recommendation, as Modular Coordinator, for windows to be installed in modular masonry walls."

William Demarest, Jr.
Modular Coordinator
American Institute of Architects

Uniform load tests and Hardware load tests were made on a window 4'-0⅞" wide and 8'1" high with 4-lite ventilators, which is the largest standard intermediate projected window as shown in our catalog.

Air infiltration tests were conducted on window units with 4-lite ventilators measuring 4'0" wide and 2'8" high— the largest opening ventilator as shown in our catalog.

Our interpretations of these tests reveal the following results:

10 Times Tighter

Ludman Intermediate Projected Windows allow only 1/10 as much air leakage as windows that only meet AWMA P-A2 specifications. This means reduced heating and air-conditioning costs. Tables are now available that prove how quickly these savings are reflected in the Operating Budget of a building. LUDMAN LEADERSHIP IN WEATHER-STRIPPED WINDOWS MEANS LASTING SAVINGS!

4 Times Stronger

Ludman engineers have established that a good Projected Window needs this added strength to insure proper performance.

4½ Times Stronger

The vital operating hardware in the Ludman Intermediate Projected Window is built to withstand daily abuse.

LUDMAN *Introduces*
WINDOW SIZES BASED UPON MODULAR MEASURE

Ludman takes the lead with a forward step of major significance to many architects. In commenting upon this important step, Mr. Demarest writes:

"The Ludman Corporation is to be congratulated for introducing window sizes based upon Modular Measure, the common-sense method of dimensioning which is being adopted by a fast-growing number of architects, builders and manufacturers of masonry and other building products."

This is just one more evidence of Ludman engineering leadership . . . just one more example of the foresighted kind of planning that has made Ludman products the instinctive first choice of so many progressive architects.

Ludman leadership in adapting design to Modular Sizing is a reflection of the thoroughness with which every Ludman product is planned and produced. From raw aluminum to finished product, Ludman products are produced under strict quality control. Every Ludman product is engineered to perform its task easily, to operate smoothly, and to insure the long operating life that delivers real economy.

ALSO AVAILABLE IN STANDARD ARCHITECTURAL SIZES

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ENGINEERS ARE
ORDER No. 368
CLIENT'S

PITTSBURGH TESTING LABORATORY

ESTABLISHED 1881

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REPORT

February 7, 1955

Report on Tests Conducted on

LUDMAN WEATHERSTRIPPED INTERMEDIATE PROJECTED WINDOW UNITS

For LUDMAN CORPORATION, North Miami, Florida

TEST RESULTS

The results of the air infiltration, uniform load and hardware load tests along with the specification maximum permissible requirements were reported below.

AIR INFILTRATION TEST

The air infiltration determined on the as received window unit in accordance with the procedure indicated in Paragraph 2.8.3.2 of Aluminum Window Manufacturers Association Specification P-A2 was determined to be 0.09 cubic feet per minute per foot at a static pressure equivalent to a wind velocity of 25 miles per hour.

Specification maximum permissible was 1.00 cubic feet per minute per foot.

UNIFORM LOAD TEST

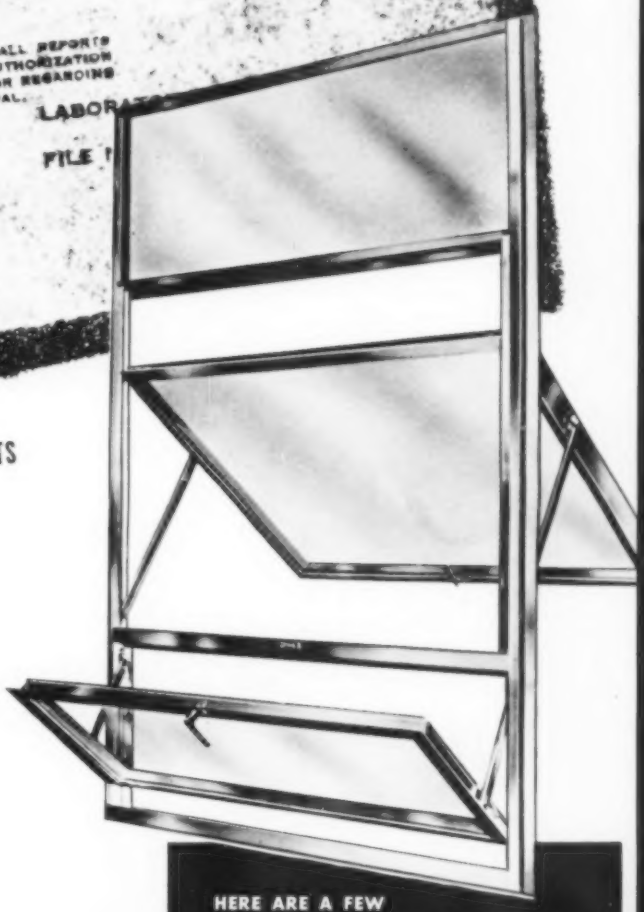
The maximum deflection of any window member under a load of 15 pounds per square foot as indicated in Paragraph 2.8.3.1B of Aluminum Window Manufacturers Association Specification P-A2 was determined to be 0.068 inches.

Specification maximum permissible was 0.274 inches.

HARDWARE LOAD TEST

The deflection at the free corner of the ventilator with friction shoes adjusted to a firm, but smooth, operating condition when tested as indicated in Paragraph 2.8.3.1A was determined to be 7/8 inches.

Specification maximum permissible was 3-1/2 inches.



HERE ARE A FEW OF THE ADDED FEATURES THAT PROVE LUDMAN'S SUPERIORITY IN WINDOW ENGINEERING

- White Bronze Corner Brace For Vents
- Adjustable Friction Shoe Compression Spring
- Windows Can Be Inside or Outside Bead or Mastic Glazed
- Hardware & Screws Attached With Threaded Grommets
- Cam Handle With Concealed Strike For Project-In Vents
- Mullion Bars Provide Caulking Pocket For Weathertight Construction
- Mullions Fluted Vertically For Appearance and Strength
- Completely Weatherstripped

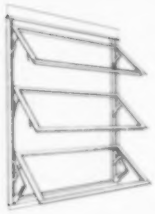
SEND COUPON ON NEXT PAGE....

LUDMAN *Window Panels*

. . . . ANOTHER DEVELOPMENT OF LUDMAN ENGINEERING

Skin-wall . . . Curtain-wall . . . Panel-wall. To assist the progressive architects who are seeking new methods of gaining beauty and utility, while reducing construction costs, through these new building techniques, Ludman is proud to introduce **Ludman Window Panels.** An extremely efficient, very versatile, and thoroughly practical approach to a new construction method, Ludman Window Panels offer you almost unlimited scope in planning. **Consult Ludman engineers for full cooperation in developing your next building** . . . from the inception of the sketches to the final step in construction, **Ludman engineers are at your service.**

LUDMAN LEADS IN WINDOW ENGINEERING

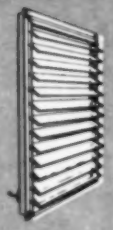


LUDMAN AUTO-LOK ALUMINUM AWNING WINDOWS

The window industry's most outstanding development . . . . the window that has solved so many of the architect's problems.

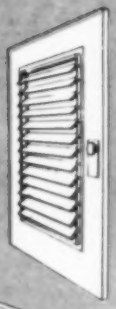
LUDMAN AUTO-LOK WOOD AWNING WINDOWS

The same Ludman quality . . . . the same tight closure . . . . available in wood windows through jobbers everywhere.



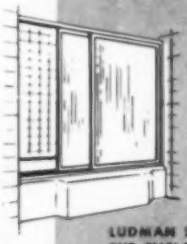
LUDMAN JALOUSIES

Ludman engineering has added more technical improvements to jalousie windows than any other company . . . . produced a jalousie you can specify with confidence.



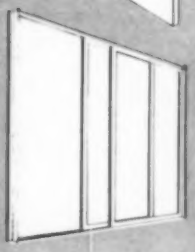
LUDMAN JALOUSIES IN DOORS

Ludman engineered jalousies available also in doors.



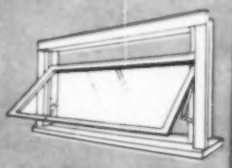
LUDMAN ALL-WEATHER ALUMINUM SLIDING GLASS DOORS

Built to high Ludman standards . . . the only door so completely weather-tight as to be suitable for all climate use.



LUDMAN SHOWER DOOR TUB ENCLOSURE

Top quality fibreglass panels set in beautiful Anodized Aluminum Frames. LUDMAN QUALITY CONTROLLED.



LUDMAN SINGLE SASH WOOD AWNING WINDOWS

A Single Sash Wood Unit with extraordinary design flexibility. Handled by wood jobbers everywhere.

LUDMAN INTERMEDIATE ALUMINUM PROJECTED WINDOW

The finest Projected Window ever made . . . . completely weatherstripped — engineered to high LUDMAN standards.

YOUR PRESTIGE IS REFLECTED IN THE PRODUCTS YOU SPECIFY

The architect, as do other professional men, cherishes his prestige . . . knows it as his most valuable asset. Fine products . . . products that look better . . . perform better . . . perform well and economically for the life of the building — these are major factors in supporting the reputation of the architect. And the best products cost so little more to install . . . cost so much less across the years. Protect *your* prestige when you specify!

LUDMAN CORPORATION • North Miami, Florida • Dept. AF-4

Please send me full information on the following Ludman Products:

Auto-lok Aluminum Awning Windows Wood Auto-lok Awning Windows
Jalousies Jalousie Doors Aluminum Framed Sliding Glass Doors
Shower Door Tub Enclosures Intermediate Aluminum Projected Windows
Single Sash Wood Awning Windows

Name.....Firm.....

Street.....City.....Zone.....State .....

MOVE YOUR OUTLETS TO WHEREVER YOU NEED THEM!

. . . IT'S EASY AND INEXPENSIVE WITH . . . .

low cost R/C DUCT FLOORS

Now you can take office arrangement out of its strait jacket . . . without paying a premium! R/C Duct Floors provide 100% electrical flexibility to take care of any future rearrangements. Yet its original cost is about the same as a conventional wiring system of equal capacity. Outlets for power and communications systems can be connected to convenient risers in a matter of minutes. There is no ripping up or drilling through floors and ducts.

R/C Duct Floors consist of *standard* steel electrical distribution ducts set in the *structural* slab of reinforced concrete joist floors . . . *no expensive fill or topping is needed.* Meet all code requirements.

Average costs show that R/C Duct Floors cost 19% less than cellular steel floors! Before you design your next building, why not investigate R/C Duct Floors?

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Includes full details on design, costs, and technical specifications.

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WOOD AWNING WINDOWS

Consider the various elements that determine whether a window *measures up* to your specifications. QUALITY, PERFORMANCE and STYLE are primary considerations, of course, since they translate to home-buyer satisfaction. There's ECONOMY of labor that results from EASE-OF-INSTALLATION... made possible only by the manufacturer's rigid adherence to precise dimensions. Finally, you are concerned with the availability of a complete RANGE of SIZES and STYLES to meet every window requirement.

Whether you use one or all of these yardsticks you'll find WOODCO E-ZEE Loc Wood Awning Windows not only *measure up* but surpass all others in every respect.

there are many ways to measure a window

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CHECK THE WOODCO E-ZEE Loc PATENTED FEATURES:

- EASY TO LOCK
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Voted Most Unpopular

. . WITH SCHOOL CHILDREN

H. B. SMITH BOILERS

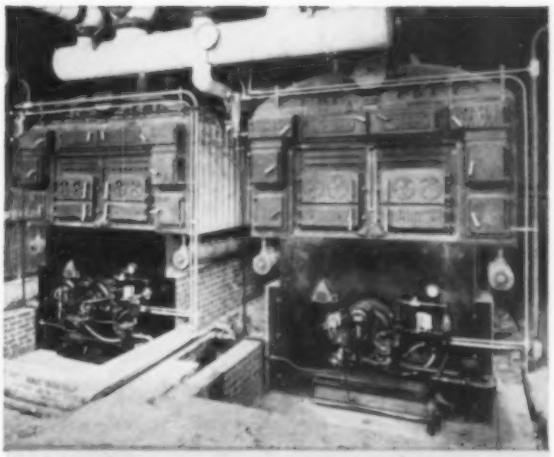
Well, you can hardly blame the youngsters — it's a long, long time between school closings due to failure of an H.B. Smith cast iron boiler. You see, these boilers are virtually breakdown-*proof*, due to their header-type construction . . .

But give the children a few more years: they'll be parents paying taxes to retire new bond issues for more classrooms for more children . . .

They'll vote "MOST POPULAR" when they learn that the H. B. Smith boilers, installed 20 years before, are still in first-class condition, and can be expanded with new cast iron boiler sections to carry the increased heat load . . . saving thousands of dollars.

. . . "MOST POPULAR" when they learn that there is no boiler tube replacement item in the maintenance budget, because H. B. Smith boilers have integral cast iron water tube sections which last as long as the boiler.

. . . "MOST POPULAR" as the years pass, because of fuel economy, quick heating, easy conversion, ability to take overloads — and, of course, *low maintenance and repair* . . .



Two 10-section oil-fired 60 Smith boilers installed in the Elementary School at Penn Wynn, Pa., in 1930, were enlarged to 26 sections each in 1949, and are serving the second generation . . . and there are more of them.

It's not unusual for an H.B. Smith cast iron boiler to serve three generations of children in a school.

If *you* want to be popular with taxpayers year after year, specify H. B. SMITH cast iron boilers for that school boiler plant.

H.B. Smith **CAST IRON BOILERS**

H. B. SMITH CO., INC., WESTFIELD, MASSACHUSETTS • *Established 1853*

7 Acres of Building completed in 6 months with 10 ACRES OF LATH and plaster FIREPROOFING

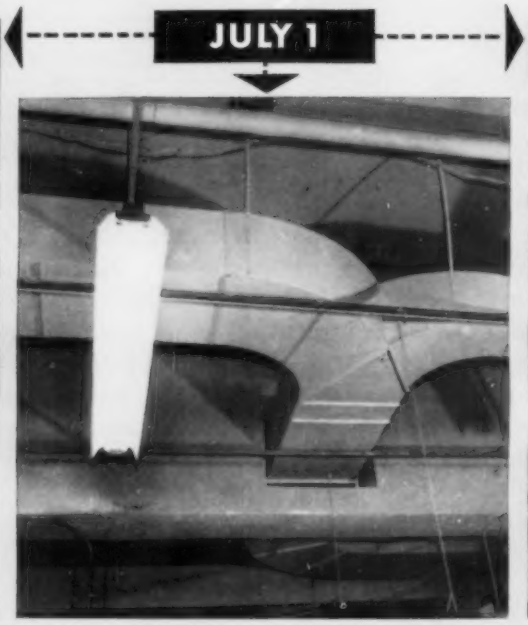
...for fire protection up to 4 hours

Construction of the Chrysler Division's new Building 41, a two story body paint and finishing plant, involved certain special problems. Contractors were faced with the problem of bringing in materials while the building site was being used for the production of the "Chrysler" Car on a 16 hour production schedule. All construction work had to be done without interruption of this schedule.

Since the second floor contained spray booths and gas drying ovens, the supporting structural steel was fireproofed with a lath and plaster ceiling in order to meet fire protection requirements. In addition, certain areas of the second floor were cut off the main area by means of fire and smoke baffles.

In less than 16 weeks, working around moving conveyors, mechanical installation, and concrete placing, over 47,000 sq. yards of 1″ thick plaster was machine applied on lath. It provided fireproofing for structural steel members up to a 4 hour rating, made appreciable steel savings through a drastic reduction in dead load weight, and assisted greatly in completing this 285 x 1040 foot, two-story building approximately 6 months after steel erection was started.

• Shell (or membrane) lath and plaster fireproofing around trusses, columns or beams.



• Open spaces between truss struts used for duct passages have plaster returns to insure complete fire protection for truss members.

• Lath and plaster ceiling protects steel flooring above.

ARCHITECTS:
Albert Kahn Associated Architects and Engineers Inc., Detroit, Mich.

GENERAL CONTRACTORS:
J. A. Utley Company, Royal Oak, Michigan

Certified Craftsmanship *IN ACTION!*

The Certified Craftsmanship Certificate is a written pledge of adherence to work schedules, job cooperation, work of craftsmanship caliber and nationally recognized standards of quality. A certificate is yours for the asking from lathing and plastering contractors adhering to the code of Standard Practices for Lathing and Plastering.

We suggest a thorough reading of the Code of Standard Practices which appears on the back of every certificate. Ask your lathing and plastering contractor for a copy, or write National Bureau for Lathing and Plastering, 1401 K Street, N. W., Washington 5, D. C.

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• *This is the emblem of the National Bureau for Lathing and Plastering. It symbolizes high standards of job performance and responsibility.*

E. Davis McNulty, Vice President, McNulty Bros. Plastering Contractors, presents Certified Craftsmanship Certificate covering Chrysler Building 41 to Frank Smith, Expeditor, J. A. Utley Company, General Contractors.

DOW

NOW! STYROFOAM

brings entirely new type of perimeter insulation to homes!

No other material like it! An expanded plastic, its remarkable insulating properties provide lifetime protection against cold

Styrofoam® (a Dow plastic foam) is the same insulation that's proved so outstandingly effective in industrial refrigeration work. Field tests and actual use by building contractors and architects prove it's just as permanently effective, just as economical in perimeter application!

Look at these outstanding advantages!

HEAT WON'T READILY PENETRATE IT . . . Styrofoam has a low "K" factor (0.25). And it stays low indefinitely.

DOESN'T ABSORB WATER . . . Because it has a non-interconnecting cellular structure. Here's the secret of its constantly low "K" factor. No exterior coatings needed, either.

RESISTS ROT, MOLD, VERMIN, DETERIORATION . . . Styrofoam has no food value so it's vermin and fungus resistant . . . won't rot, either. It lasts and lasts.

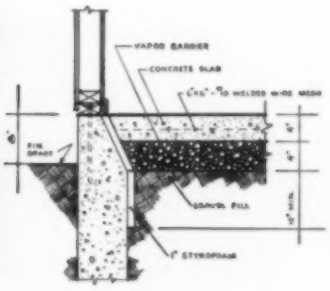
LIGHTEST RIGID INSULATION EVER MADE . . . Has an average density of 1.8 lbs. per cubic foot . . . can be installed in large pieces, cutting labor costs.

HIGH COMPRESSIVE STRENGTH . . . Average strength of 3,000 lbs. per square foot. Concrete floors can be poured right over it.

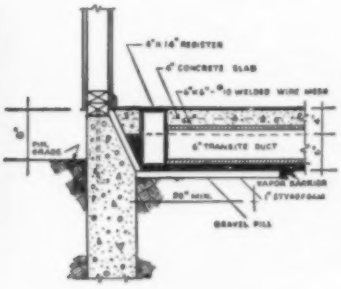
EASY TO HANDLE . . . It's light, clean . . . can be cut and shaped with ordinary tools . . . easily bonded to itself and other materials.

ECONOMICAL . . . Its ease of handling cuts time and installation costs. Its constantly low insulation value brings lower fuel bills.

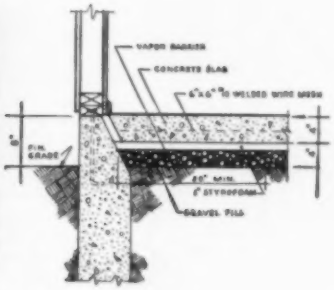
Here's how Styrofoam is used in perimeter applications



Styrofoam is being used in a vertical position for perimeter insulation. It can be adhered in place or held by back fill. Minimum F.H.A. requirements in vertical position are one to two inches thick from floor line to a depth of 12″-24″ below grade line depending on climatic conditions.



In this perimeter heating application, Styrofoam is used both vertically above grade and horizontally from outer edge of slab on the grade. One inch thick Styrofoam perimeter insulation in a 1′-1½′ combined vertical and horizontal width is accepted by F.H.A. for perimeter, radial and radiant type slab heating systems.



Styrofoam used in a horizontal position for perimeter insulation. One to two inches of Styrofoam is used for a distance of 12″-24″ in from perimeter, meeting F.H.A. minimum requirements in various climatic areas. Due to the strength and moisture resistance of Styrofoam, the concrete floor can be poured directly over it without compressing the Styrofoam.

For further information on Styrofoam send in the coupon below or contact your nearest distributor of Styrofoam.

THE DOW CHEMICAL COMPANY, Midland, Michigan. *The Putnam Organization, Inc., Chicago, Ill.* • *Seward-Kauffman Corp., Elkhart, Ind.* • *Styro Products, Inc., Kansas City, Kansas* • *Atlantic Foam Products Co., Ipswich, Mass.* • *Par-Foam, Inc., Detroit, Michigan* • *Edwards Sales Corp., Minneapolis, Minn.* • *Floral Foam Products, Midland, Michigan* • *Styro Sales Co., New York City* • *William Summerhays Sons Corp., Rochester, N.Y.* • *G. & W. H. Corson, Inc., Plymouth Meeting, Penn.* • *The Emerson Co., Houston, Texas* • *Utah Lumber Co., Salt Lake City, Utah* • *S & S Sales Corp., Milwaukee, Wis.* • *Durofoam Insulation, Ltd., Kitchener, Ontario, Canada* • *Western Foam Products, Inc., Colma, Calif.* • *Wiley-Bayley and Co., Seattle, Wash.*

Please send me further information on Styrofoam for use in perimeter applications.

THE DOW CHEMICAL COMPANY
PLASTICS SALES
DEPARTMENT PL526 *M*
MIDLAND, MICHIGAN

Name_____

Title_____ Company_____

Street_____ City_____ State_____

you can depend on
DOW PLASTICS

DOW

All lumber kiln-dried to specific, and uniform moisture content.

Before and since CS200-55
.. or by any other standard of comparison

PAINE
REZO®
FLUSH DOORS

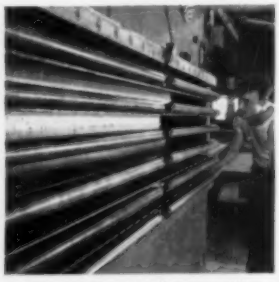
with air-vented, all-wood grid core is

America's Finest

Stiles and rails securely fitted. Stiles are 1 7/16" instead of 1 1/8".

Hand-matched face veneers; the panels 1/8" thick—instead of 3/16".

A complete coating of resin glue is applied by machine.



Accurate assembly is assured by controlled heat and pressure.

Doors pass through a complete conditioning cycle in special kilns.

Doors are carefully belt-sanded to a cabinetmaker's finish.

Special doors are custom-made by experienced craftsmen.

Each door must be painstakingly inspected in oblique light.

The Paine REZO Door is the only flush door manufactured since 1935 backed by 103 years of millwork experience — and 8,000,000 successful installations.

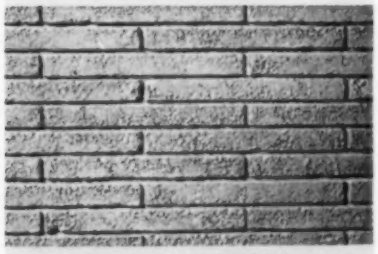
Paine's manufacturing standards not only comply with — but they exceed by far — every requirement of the new Commercial Standard 200-55. Step by step manufacturing process photos at left show why, by any standard of comparison, the Paine REZO Door is America's finest!

Write today for descriptive literature

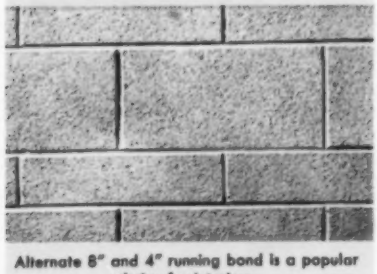
PAINE
LUMBER COMPANY, LTD.
ESTABLISHED 1853 • OSHKOSH, WIS.

TWO PATTERNS of exposed concrete masonry blend to finish this unusual room. Left wall—symmetrical stacking of 8" x 8" face block. Back wall — horizontal stacking creates striking hood above firescreen.

Scored split block gives distinction and rugged beauty.



Concrete roman brick in 2" x 16" face size for the modern touch.



Alternate 8" and 4" running bond is a popular choice for interiors.

Your building dollar goes farther—you build better with

Versatile Concrete Masonry

More and more builders are choosing the wide range of wall patterns for both exteriors and exposed masonry interiors—proving again that no other building material offers the flexibility of concrete masonry at such a low in-the-wall cost.

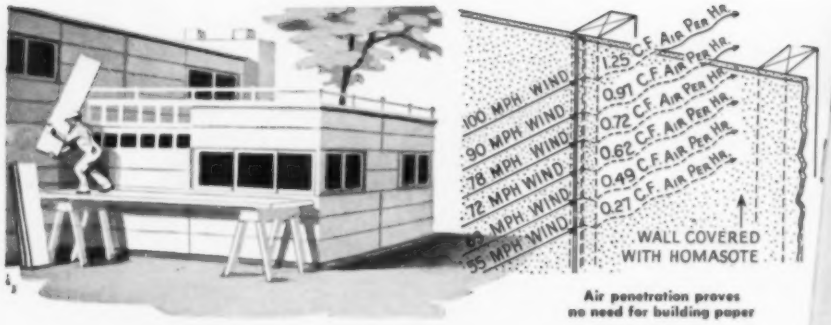
And concrete masonry is available locally coast-to-coast. There are no costly waits when you choose block.

For all the facts about the wide new range of shapes, textures and sizes—see your local NCMA member.

"Ideas for Wall Patterns with Concrete Masonry": *Ask your local NCMA member for a copy of this book, giving the complete story on wall patterns.*

NATIONAL CONCRETE MASONRY ASSOCIATION

'38 South Dearborn—Chicago


100 MPH WIND
90 MPH WIND
78 MPH WIND
72 MPH WIND
65 MPH WIND
55 MPH WIND
1.25 C.F. Air Per Hr.
0.97 C.F. Air Per Hr.
0.72 C.F. Air Per Hr.
0.62 C.F. Air Per Hr.
0.49 C.F. Air Per Hr.
0.21 C.F. Air Per Hr.
WALL COVERED WITH HOMASOTE

Air penetration proves no need for building paper

For basic economy in Sheathing

It's different!

When a builder eliminates a dozen costly details — *with better end results* — he is getting basic economy. This is Homasote economy. The Homasote Handbook — Page 28 —says:

"For real economy the $^{15}/_{32}$" (Homasote) is the right material for all types of finished exteriors — such as brick veneer, siding, clapboard, or stucco. If the builder uses the Big Sheets in the proportion of one-third 8′ x 14′s and two-thirds 8′ x 12′s, he will find that he comes out with no waste at all. The cutouts from windows or doors may be used as closet ceilings, plaques, soffits of stairwells, as well as exterior soffits."

With the Big Sheets, racking tests by independent laboratories show there is no need for corner bracing. Weatherproof Homasote needs no building paper, as the air penetration tests above demonstrate. Homasote **know-how** reduces material and labor costs.

The famous One-Man Sheathing, in V-grooved 2′ x 8′ panels, is another Homasote sound building value.

The Homasote Handbook gives you the right answers to 100 construction problems. We have confidence in its basic value. Homasote *is* different — in both product *and* **know-how**.

May we send you a copy — without cost or obligation? Kindly address your inquiry to Department C-14.

HOMASOTE COMPANY
TRENTON 3, NEW JERSEY

Rolling Steel Doors

Manually, Mechanically, or Electrically Operated

MAHON CHAIN-GEAR OPERATOR

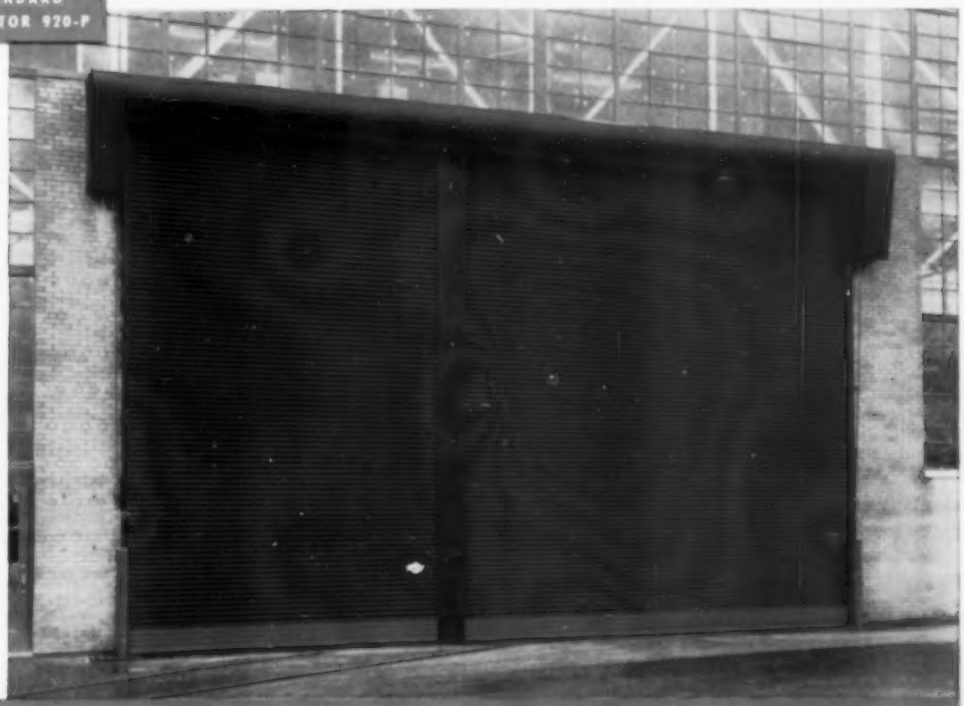
MAHON STANDARD POWER OPERATOR 920-P

In the combination truck and railroad opening illustrated below, two Mahon power operated rolling steel doors, with a movable mullion between, solved the problem of an extremely wide opening in which the entire width was required only occasionally for passage of railroad cars. The railroad spur track entered the building at an acute angle which necessitated an opening 36'-9½" wide for required clearance. It was also necessary to have a truck opening 14'-0" wide at the same location—hence the two doors. The 14 ft. door at the left operates normally as an individual door in general service as a truck opening. When it is necessary to use the entire railroad opening, both doors are opened and the movable mullion is unlocked and moved clear to the right on an overhead track. Rolling Steel Doors make ideal closure walls for craneway openings . . . they make economical, space-saving roll-up dividing walls for school gymnasiums . . . they provide an ideal means of controlling ventilation when installed in exterior walls of steel mills, foundries, pumping stations, and booster stations. When you have a special problem, consult Mahon engineers. When you buy a rolling steel door, check specifications carefully . . . you will find many quality and design features in Mahon Rolling Steel Doors that add up to a greater over-all value. See Sweet's Files for complete information including Specifications, or write for Catalog G-56.

THE R. C. MAHON COMPANY • Detroit 34, Michigan

Sales-Engineering Offices in Detroit, New York and Chicago • Representatives in Principal Cities

Manufacturers of Rolling Steel Doors, Grilles, and Automatic Closing Underwriters' Labeled Rolling Steel Fire Doors and Fire Shutters; Insulated Metal Walls and Wall Panels; Steel Roof Decks and Long Span M-Decks; Permanent Floor Forms; and M-Floors (Electrified Cel-Beam Floor Systems).



ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

Two Mahon Power Operated Rolling Steel Doors, with movable mullion between, installed in a combination truck/railroad opening 36'-9½" x 23'-0" in a new building for the Fitzsimmons Manufacturing Co., Detroit, Mich. Barton-Malow Co., Detroit, Mich., Gen. Contrs.

MAHON

No. 4 Expansion casing bead
No. 60 Expansion casing bead
No. 66 Expansion casing bead
No. 138 Short-flange casing bead
No. 60 Short-flange casing bead
No. 66 Short-flange casing bead

Makes any wall or ceiling opening look better

Milcor Casing Bead blends into plaster surfaces to achieve good design . . . and actually costs less

Wherever it is used — around doors, windows, or ceiling vents. . . or to separate plaster from other materials — Milcor Casing Bead presents a neat, attractive appearance. Its simple lines fit well into modern interior design, offer you extra freedom in planning for wall and ceiling openings.

Savings in finishing make the final cost actually less than for wood casings. The finish requires no sanding, no filler, less painting.

You'll find a variety of styles with or without expanded metal flange in the Milcor line. See them in Sweet's File (Section 12a/In) or send for catalog No. 202.

MILCOR® Casing Bead

Milcor No. 4 Expansion Casing Bead used around door opening with Milcor Smalmesh Metal Lath as the plaster base and Milcor No. 675 Applied Metal Base as trim.

M-178

INLAND

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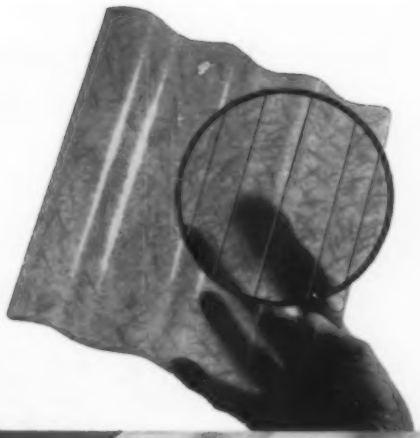
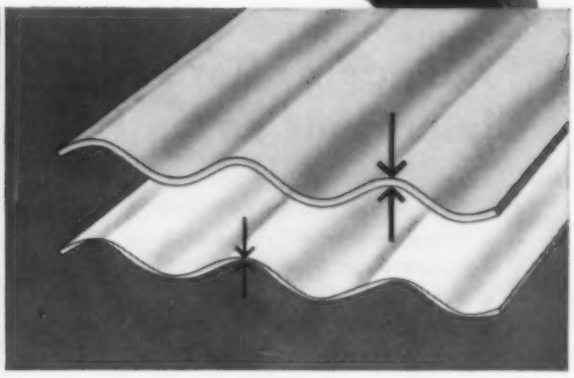
UNIFORMITY

makes a big difference in Fiberglas-Plastic Panels



FILON PANELS ARE BY FAR THE MOST UNIFORM . . . WITH GREATER STRENGTH AND DURABILITY. The parallel nylon strands (as shown in the magnified circle) are an exclusive FILON feature to control a uniform dispersion of Fiberglas and to add considerably to the strength and rigidity of FILON panels.

FILON'S UNIQUE MANUFACTURING PROCESS. High standards of quality are the result of extensive research for better raw materials and methods of production. FILON is produced in continuous lengths by a fully automatic electronically controlled system in the world's largest plant devoted exclusively to the manufacture of Fiberglas-Plastic panels.



UNIFORM THICKNESS FOR MAXIMUM DURABILITY. FILON'S uniform thickness prevents premature failures at fastening points. Moreover, the uniform density in color will create the most even lighting effects. FILON'S uniformity of thickness and color dispersion assures greater durability and better diffusion of light.

UNIFORM CORRUGATIONS FOR BETTER FIT. A good nesting overlap is obviously essential for a tight, waterproof fit. Rigid standards of corrugation tolerances for FILON panels give maximum assurance of satisfactory nesting and overlaps.

FILON HAS MUCH HIGHER LOAD CAPACITY THAN REQUIRED BY STANDARDS OF THE INDUSTRY. Shown above is a 26" wide FILON type 250 panel over a 4' span supporting a static load of 1820 lbs.—equivalent to 210 lbs. per sq. ft. Compare this with the 100 lbs. per sq. ft. required by industry standards.

FOR FREE ILLUSTRATED BROCHURES containing all technical data, ideas and detailed drawings, write to Architectural Dept. of our Regional Sales Offices or consult the "Yellow Pages" under the heading "Plastic Materials" for nearest Distributor.

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PLASTICS CORPORATION

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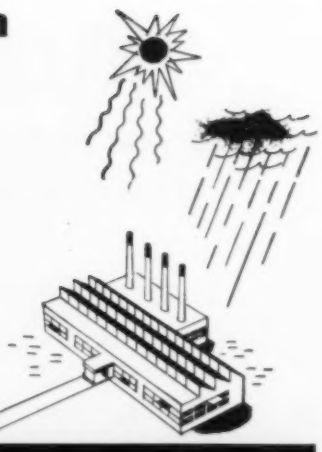
DISTRIBUTORS AND DEALERS WITH WAREHOUSE STOCKS COAST TO COAST, CANADA AND MANY OTHER FOREIGN COUNTRIES

Now—for maximum Roof Protection
Johns-Manville

Aquadam

(slag or smooth surfaced)

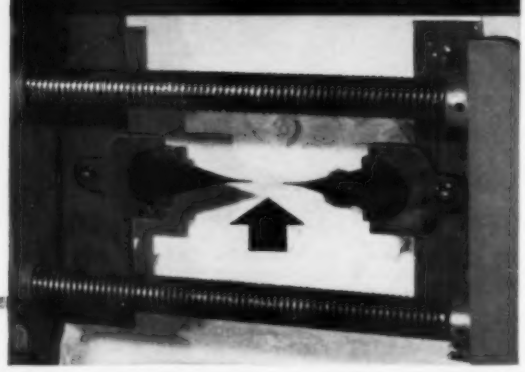
Built-Up Roofs*

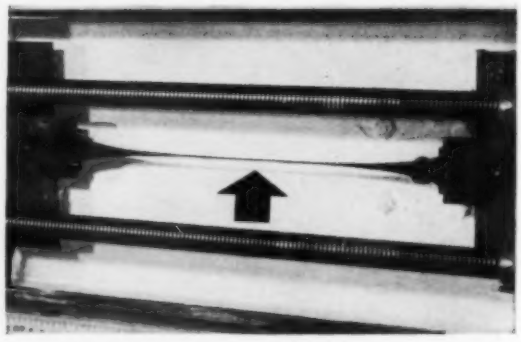


Aquadam offers these important advantages:

- Superior resistance to cracking
- Superior weather resistance
- Improved self-healing properties
- Greater kettle stability
- Greater adhesion—stronger bond
- Greater resistance to water
- Excellent uniformity

Here's conclusive proof of Aquadam's greater resistance to cracking!





Top: a typical asphalt shown at average breaking point of 12 CM.

Bottom: Aquadam at a 25 CM stretch—100% beyond average—won't break even when stretched to 110 CM.

J-M Aquadam proved superior by actual test... helps provide longer roof life at no extra cost

Johns-Manville Aquadam is specifically designed to provide maximum built-up roof service for deck inclines from dead level to ½″ per foot*.

J-M Aquadam Built-Up Roofs owe their proven superiority to the newly developed bituminous asphalt cementing agent Aquadam—which is used in the application of the roofing felts.

When applied, the excellent adhesive properties of Aquadam provide a permanent bond to the felts, and to gravel or slag surfacing. Its rigidly controlled quality and excellent flow properties assure easier mopping, thorough coverage, and longer lasting roof life.

Your local Approved J-M Contractor, listed in the classified telephone directory, has complete information about Aquadam Built-Up Roofs. Or write Johns-Manville, Box 158, New York 16, N. Y. In Canada, write 565 Lakeshore Rd. East, Port Credit, Ont.

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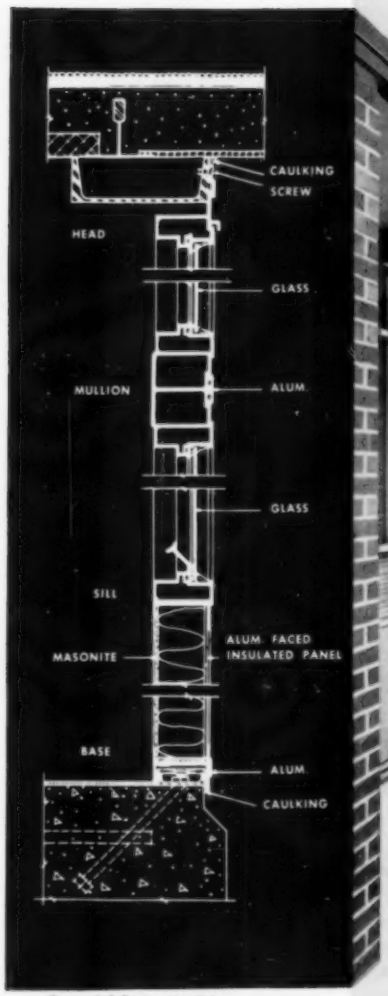
Johns-Manville

Architects meet the budget, beat the deadline, please the client, with . . .



Research & Engineering Bldg.
Hudson Pulp & Paper Corp.—Palatka, Fla.
J. E. Sirrine Co.—Engineers
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Brown & Grist WINDOW WALLS

The problem was a common one: Design a low-cost building that would look good, and be easy to erect. Faced with this three-way challenge, the architects of the Hudson Pulp and Paper Research and Engineering Bldg. in Palatka, Florida, turned to Brown & Grist for the solution.

Brown & Grist Aluminum Window Walls turned the trick. They offered beauty, quality and flexibility of design. Installation cost was below that of masonry walls. They could be erected with the speed and ease of prefabs.

This new type aluminum wall construction can help solve your problems, too. They meet every principle of sound construction. They allow you a flexibility never possible with old style walls. Panels can vary from sheet asbestos to handsomely colored porcelain aluminum. Venting and operating arrangements can be designed to suit *your* needs.

Besides savings, speed and lasting quality, Brown & Grist window walls offer many other advantages. For *full* details and free catalogs, write or wire. Brown and Grist engineers will work closely with you to meet your specifications.

Specify Brown & Grist Window Walls For:

- **Fast, Simple Erection**
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- **Beauty and Durability**
- **Flexibility in Design & Materials**
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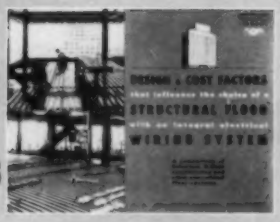

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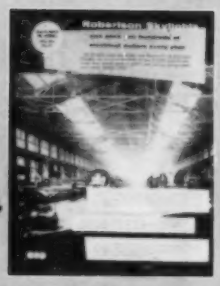

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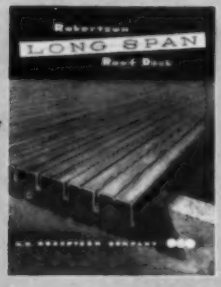

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8

Write- for these free books from Robertson's technical library

1. Acoustical Data on Q-Deck: It has long been known that the fluted underside of steel deck provides some acoustical value, yet demand for more has led to this new low-cost method. Application details and test data are included.

2. An Analysis of Industrial Roof Construction: This valuable booklet compares all the better-known roof types (flat, monitor, bow-string, high-low bay, saw tooth) on the basis of structural steel, volume, roofing, sash area, flashing, ventilation and daylighting.

3. Design and Cost Factors of Structural Floor Wiring: This study compares Q-Floor with other conventional floor systems using underfloor duct. Based upon a typical multi-story building, the book is replete with charts and cost analyses of all structural components.

4. Daylighting Cost Analysis: This new and unusual study contains a questionnaire, which when properly filled out will reveal how quickly scientifically planned natural daylighting will pay for itself in a structure through savings in electricity. All data are substantiated.

5. New Composite Q-Floor Catalog: This newly revised catalog contains many examples of the latest Q-Floor buildings and a full exposition of Q-Floor advantages. Structural details and specifications are more complete than ever before.

6. New M-Type Q-Panel Catalog: Recent newcomer to the Robertson product family is the M-Type Q-Panel which possesses unique advantages over other types of modern curtain wall construction. The book contains 3 pages of structural details plus complete specifications.

7. New Long-Span Q-Deck Catalog: Another new Robertson product is this sturdy, yet exceptionally long-span deck. Easy to handle and erect despite its length up to 32 feet, it is especially designed for schools and supermarkets and other structures in which unbroken spans and a saving of structural steel is beneficial.

8. Ventilation Engineering Booklet: More than a ventilator catalog, this booklet not only describes products, but contains detailed tables of exhaust capacities, based upon average wind velocities, temperature differences and height above intake. Use the coupon below.

Robertson Products

for modern buildings

H. H. Robertson Company
2405 Farmers Bank Building, Pittsburgh 22, Pa.
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Please send the free data book(s) I have circled below.

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NAME _____

FIRM _____

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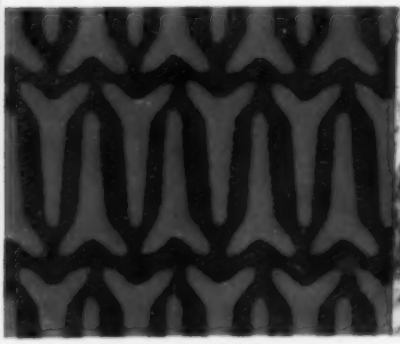
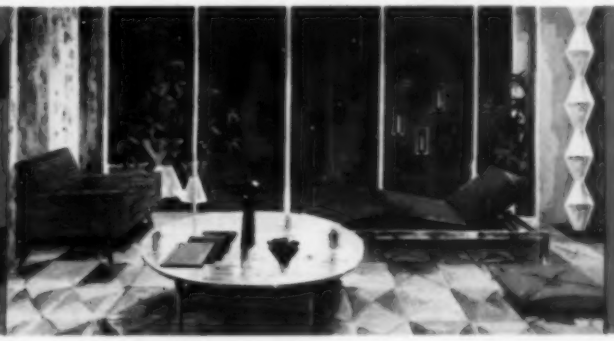
Designed to be lived with...

Breathable* U.S. Naugahyde® miracle vinyl upholstery

The spacious all-purpose room, shown below, designed by Dan Aberle is paced to the requirements of modern living, is meant to be enjoyed freely. The secret of its carefree comfort and its handsome good-looks is Breathable U. S. Naugahyde. This is the deep-dimensional modern upholstery fabric that combines all the airy comfort of an open-weave material with the practical durability of vinyl. Colorfast, handsomely styled and richly textured, it resists soil...will clean with a brush or damp cloth. Look for furniture upholstered with Breathable U. S. Naugahyde at leading stores everywhere...or consult your upholsterer or decorator.

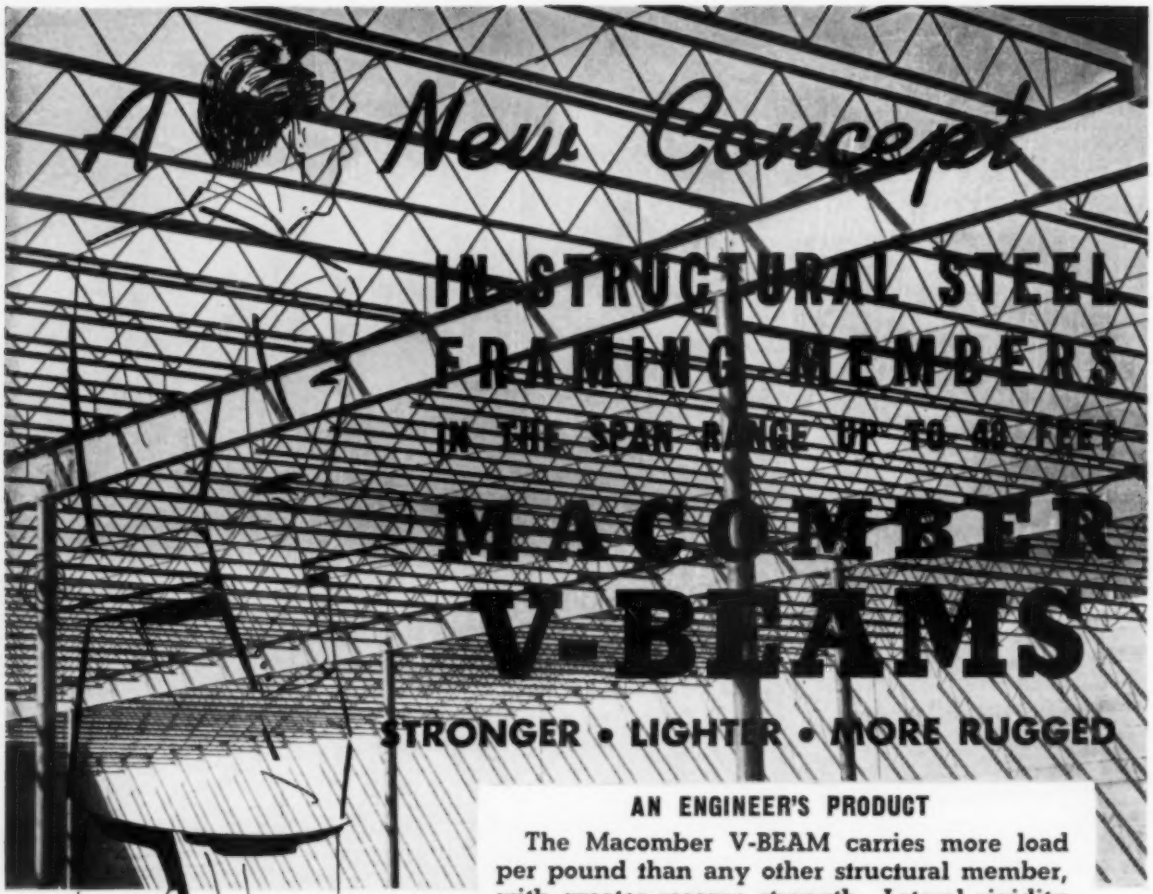
*patent applied for





Dan Aberle, A.I.D., uses the Pylon pattern in blue (swatch shown left) on this modern club chair. Pylon ...one of four exciting patterns in a wide range of decorator colors.

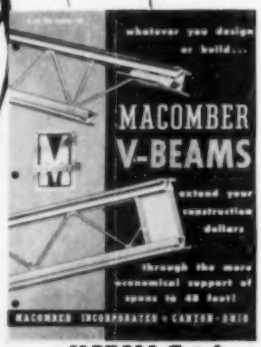
United States Rubber



AN ENGINEER'S PRODUCT

The Macomber V-BEAM carries more load per pound than any other structural member, with greater reserve strength. Lateral rigidity is appreciably increased.

PERFORMANCE — proved by extensive Pittsburgh Testing Laboratory tests — transcends all existing framing standards. If you want to extend your construction dollars through the more economical support of spans to 48 feet—the V-BEAM is your qualified framing member.


whatever you design or build...
MACOMBER
V-BEAMS
extend your construction dollars
through the more economical support of spans to 48 feet!
MACOMBER INCORPORATED • CANTON, OHIO

Send for your V-BEAM Catalog.

Shown above: Country Fair Shopping Center, Zanesville, Ohio. Don M. Castro and Don M. Castro, Jr., Developers. C. Melvin Frank, A.I.A. Architect.

THESE MACOMBER PRODUCTS
HAVE BEEN PRODUCED UNDER CONTINUOUS RESIDENT INSPECTION
PITTSBURGH TESTING LABORATORY

Contractors will recognize the extra value their money buys.

STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER INCORPORATED

CANTON 1, OHIO

• ENGINEERING • FABRICATING AND ERECTING •

NAILABLE STEEL JOISTS
•
LONGSPANS
•
BOWSTRING ROOF TRUSSES
•
METAL DECK
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V-LOK STEEL FRAMING
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STRUCTURALS

Toplite Panels may be installed in continuous strip, pattern, or individual panels. Use a Toplite Panel as you do a lighting fixture.

Greater freedom in office design . . .

Thomas A. Schutz Company, Morton Grove, Illinois. Seymour S. Goldstein, Chicago, Illinois, Architect. B. Stromberg Construction Co., Morton Grove, Illinois, Contractor.

For daylighting and decorative effect, Toplite Roof Panels permit complete flexibility

Now, perimeter areas no longer need to be considered premium areas. Toplite Roof Panels permit daylighting of all building areas regardless of location or distance from exterior walls.

In addition to providing proper daylight for deep interior areas, Toplite Roof Panels allow complete flexibility in planning and decorating offices, reception rooms, lobbies and similar locations where maximum daylight and pleasing design are desirable.

Light-Selective Toplite Roof Panels transmit cool, desirable daylight; reject hot, glaring sun. They "think" before they transmit the sun's rays. Needed North light and the soft low rays from the South are readily accepted. Glare and heat of old-fashioned skylights are eliminated.

The complete story of this great new advance in efficient utilization of free daylight is available in a new booklet on Toplite Roof Panels. For your free copy, write today: Kimble Glass Company, subsidiary of Owens-Illinois, Dept. PA-3, Toledo 1, Ohio.

TOPLITE ROOF PANELS
AN (O) PRODUCT

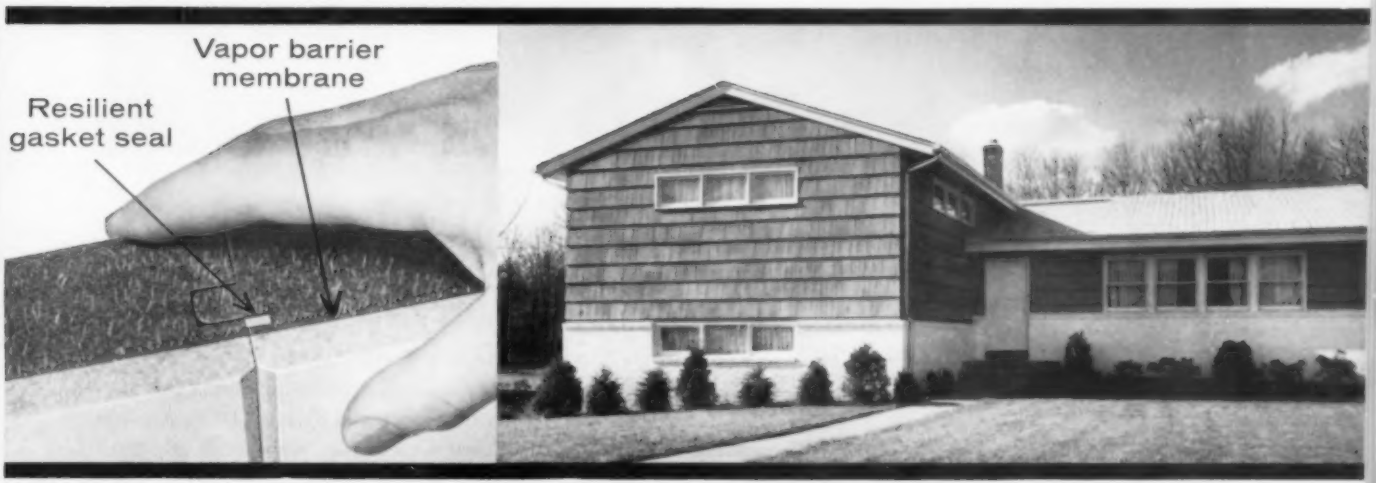
OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

Insulite Roof Deck design outsells others 3 to 1 in New Jersey project

Homes designed with Insulite Roof Deck are outselling all others in the Mountainside Park project. "Out-selling them three to one," reports Mr. Lester Robbins, president of the Robbins Co., Union, N. J., the builders.

Insulite Roof Deck displays quality and beauty to the prospective home purchasers. The white, pre-finished underside adds to the "cathedral" effect. See, at left, how Insulite Roof Deck contributes to the free and open look the architect, the late Sam Glaberson, A.I.A., wanted in this exposed beam ceiling.

All over the country builders report Insulite Roof Deck reduces costs $80 to $300 per home. Goes up fast. Roof Deck is three products in one. A single operation does three jobs. Send for pictures and construction details now! Write Insulite, Minneapolis 2, Minnesota.



It's insulation with vapor barrier. No need for other insulation. 2″ Roof Deck is comparable to 2″ wood deck plus 1″ fiberboard insulation. Available in 3 thicknesses to meet insulation requirements in any climate. Exclusive resilient gasket seal and vapor barrier membrane protect against condensation within the unit.

It's roof deck —2′ x 8′ units cut application time as much as 45%. Only one material to handle. New Insulite Roof Deck eliminates need for separate roof boards, insulation, lath and plaster and ceiling finishing. Insulite Roof Deck can save 12 man hours per 1000 sq. ft. of surface compared with 2″ x 6″ D&M roof sheathing.

And finished ceiling —The underside of Insulite Roof Deck is finished with flame-resistant surface. Lay Roof Deck over pre-finished beams . . . and ceiling is done. No need to plaster, paint, stain, wax. Cuts labor and material costs. In 2′ x 8′ units, 1½″, 2″, or 3″ thick—with or without vapor barrier membrane (depending on climate).

build better and save with

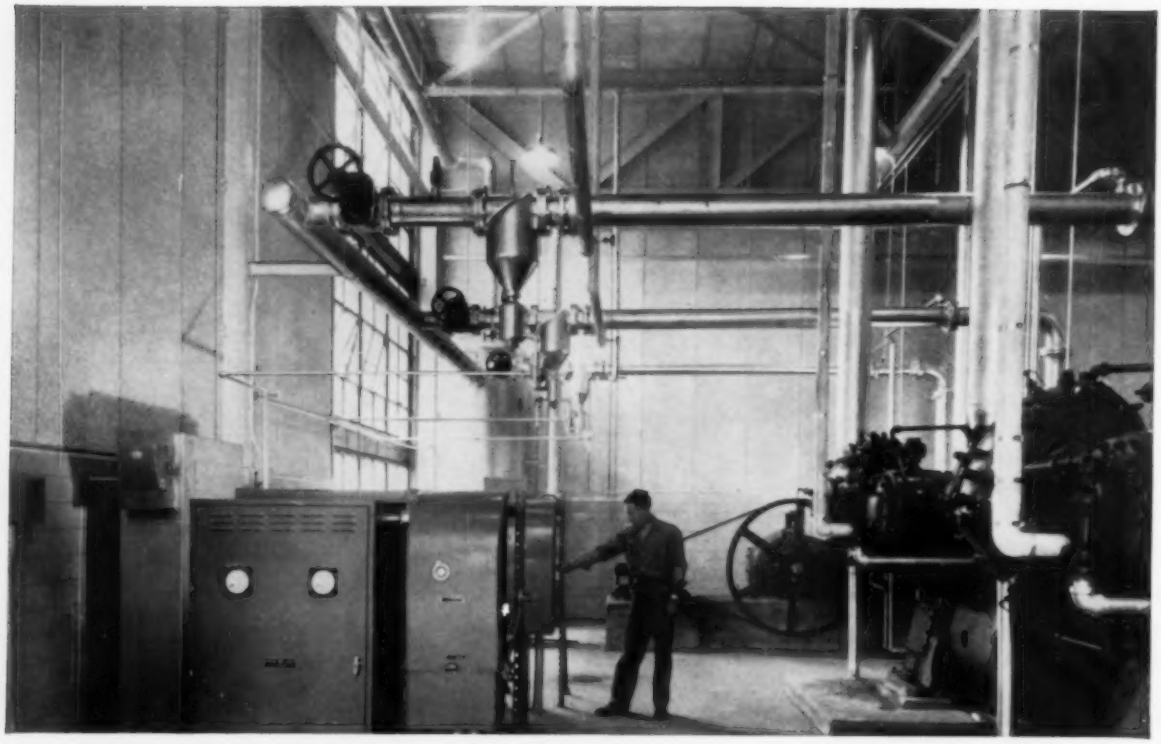
INSULITE

INSULITE IS A REGISTERED TRADE MARK

INSULITE, *Made of hardy Northern wood*

Insulite Division of Minnesota and Ontario Paper Company, Minneapolis 2, Minnesota

Architect, the late Sam Glaberson, A.I.A.



Tectum

sidewall insulation by the acre

for Fairchild Engine and Airplane Corp. plant

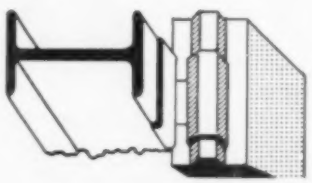
Five buildings comprise the new Deer Park, Long Island, plant of Fairchild Engine and Airplane Corp. These include manufacturing, office, turbine test, compressor and test cell (divided into 8 control rooms). A $5 million project, this plant incorporates the most modern of architectural thinking.

Modern thinking and Tectum go hand-in-hand—and 9 acres of Tectum Roof Deck and Sidewall Insulation were installed. In a plant such as this, where noise might run rampant, acoustical Tectum absorbs the sound that would be reflected off walls of hard materials. Year around comfort is assured by the insulating qualities of Tectum which runs from the ceiling 10 feet downward on every side. Here, too, is a finished wall surface that requires no painting—but may be painted, if you'd like—and maintenance is nil. Rated noncombustible by Underwriter's Laboratories, Inc., Tectum Sidewall Insulation reduces fire hazard and insurance rates as well.

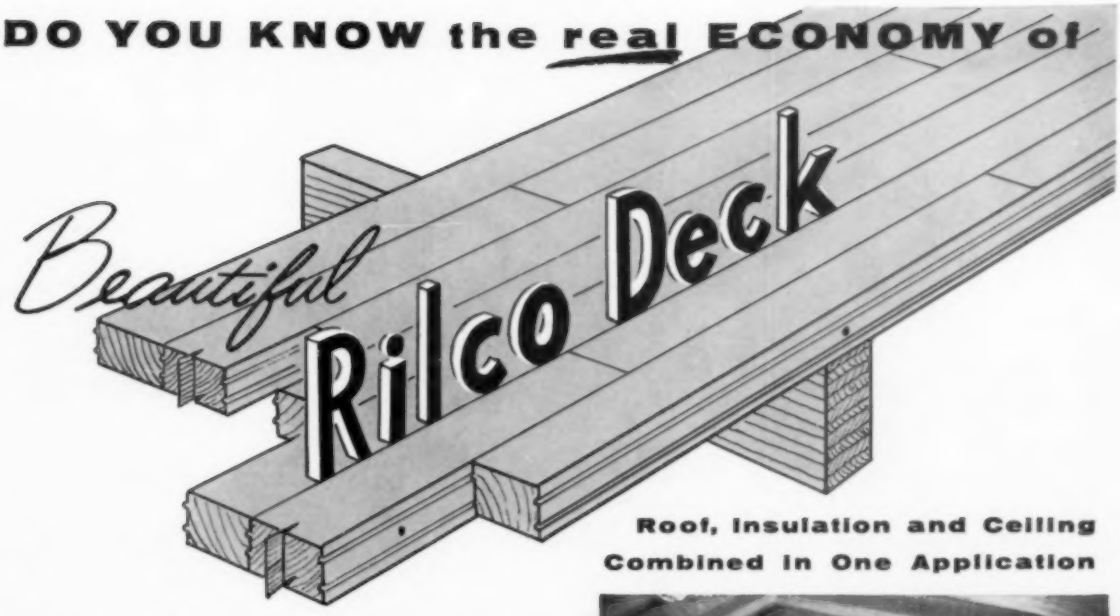
For Plants • Commercial Buildings • Institutions • Homes

Learn more about the multiple advantages of Tectum Sidewall Insulation—write for a copy of folder No. C-100 or see your nearby Tectum Distributor. Tectum Division, Peoples Research and Manufacturing Company, 406 South Sixth Street, Newark, Ohio.

Clip detail shows a suggested fastening method.



DO YOU KNOW the real ECONOMY of

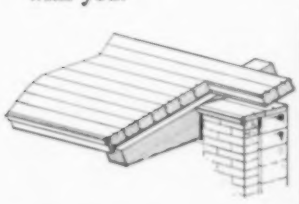


Roof, Insulation and Ceiling Combined In One Application

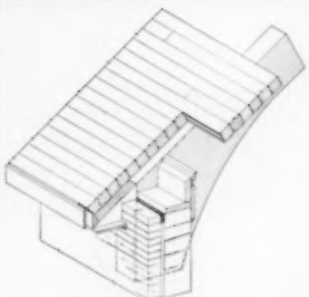
Rilco Deck eliminates the need for joists, bridging, purlins, lath, plaster and usually insulation. Manufactured of solid timber, a slab is formed by spiking together through predrilled holes the double tongue and grooved pieces. Specially kiln-dried in our own plant to insure dimensional stability, Rilco Deck stays tight, resists twisting. Ends are double trimmed for tight fit. Waste is nil.

Rilco Deck offers rich, colorful warmth which only wood can give to churches, schools, residences, auditoriums, stores and commercial structures.

Plan now to take advantage of the amazing beauty and economy of Rilco Red Cedar Deck. Also available in light color species. Our representative will gladly work with you.



Cornice Detail For Beam



Cornice Detail For Arch

Two of several details shown in our Sweets catalogue, free on request or refer to section 2B/Ri Sweets.

Natural finish of Rilco Deck offers exceptional beauty and economy..

BEVELED

STRIATED

Deck is nominal 4" x 5" machined to 3⅝" thick and 4⅜" wide. Face is graded for appearance with "V" joint, grooved or striated. Also available in nominal 3" thickness Western Red Cedar Species.

Insulation value with built up roof of U .17
with ½" insulation U .13

Moisture Content — Specially dried in our own kilns to 12 to 15% moisture.

Fire Resistant — Qualifies as mill type construction to earn low insurance rate.

RILCO
works wonders with wood

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2517 FIRST NATIONAL BANK BLDG. • ST. PAUL 1, MINN.
District offices: Wilkes Barre, Pa., Ft. Wayne, Ind., Tacoma, Wash.

These customers will drive in...

when you have snow melting!

"Not just a convenience but a *distinct competitive advantage!*" . . . that's what merchants are saying about snow and ice removal systems for super markets, shopping centers, service stations, department stores and other commercial establishments selling to the public.

Clean, bare driveways, parking areas and sidewalks (contrasted with snowy, slushy street approaches and *un*cleared competitors' places) become a strong *invitation* for shoppers to "turn in" . . . to do business where they are so obviously wanted. That's not just theory, but *fact*, proved statistically by progressive businesses where steel pipe snow melting systems are at work.

Yes, *steel pipe* is the first choice for these installations. The known economy of steel pipe makes investment in a snow melting system economically practical. And in service, steel pipe has a performance record proved in more than 60 years in hot water and steam heating applications. Add to this the advantages of formability and weldability for coil fabrication and you know why steel pipe is the most widely used pipe in the world . . . for snow melting, heating, plumbing, fire sprinkler systems, power, steam and air transmission.

Send for the free 32 page booklet "Steel Pipe Snow Melting and Ice Removal Systems."

Committee on
STEEL PIPE RESEARCH
AMERICAN IRON AND STEEL INSTITUTE
50 FIFTH AVENUE, NEW YORK 1, N.Y.

Steel Pipe is First Choice

Jamison Sound Reduction Doors help muffle high level engine noise

above—JOB-ENGINEERED Jamison S-R Doors conform to special shape of openings on installation at Long Beach Division of Douglas Aircraft Co., Inc. Airplane shown is Douglas RB-66.

below—INNER and OUTER set of Jamison S-R Doors shown on high thrust jet engine test cell. Note massive, vibration-proof hardware.

There's no better test of sound reduction doors than when they must close down on the uproar produced by a couple of J-71 engines. And there's no more conclusive proof of the effectiveness of these Jamison S-R Doors than the fact that they have been specified time and again by airlines, engine manufacturers and the military services.

Unwanted noise has been an object of study and research by Jamison engineers for years. They found that the main factor in minimizing sound transmission through a structure is weight per unit area. This led to the development of the Jamison "Mass Principle." And the application of this principle has proven effective ever since Jamison first began building sound reduction doors over 30 years ago.

Bring *your* noise problem to Jamison for dependable help, authoritative information. Write for Bulletin 16-F to Sound Reduction Door Div., Jamison Cold Storage Door Co., Hagerstown, Md., U.S.A.

JAMISON

engineered doors

For 50 years the leading builder of cold storage doors

30% less labor Costs, 15% less Waste

With CELOTEX®

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Double-Waterproofed INSULATING SHEATHING

Because Celotex Insulating Sheathing is easier to cut and fit, it goes up 30% faster, with up to 15% less waste. It insulates and weatherproofs as it builds, at *one* cost, and makes building paper unnecessary. Laminated for extra strength and rigidity, with no corner bracing needed with 4' wide, $^{25}/_{32}$" thick Celotex Insulating Sheathing to meet FHA requirements. Has approximately 30% greater strength than ordinary sheathing with let-in bracing, as proved in actual demonstrations by independent testing laboratories.

Only Celotex Insulating Sheathing is made from tough, interlocking, long Louisiana cane fibers . . . nature's long-life fibers . . . protected against dry rot and termite attack by the exclusive Ferox® Process. This ideal basic material for insulation board combines strength, lightness, and resistance to deterioration. Moreover, this sheathing is *double-waterproofed* to seal out damaging, job-delaying moisture . . . *outside*, by protective asphalt coating . . . *inside*, by special processing of the fibers. It provides *practical job advantages* unmatched by any other brand of sheathing.

For dependable, easily-applied, time-saving sheathing . . . be sure to specify Celotex *Double-Waterproofed* Insulating Sheathing.

For better building insulation... specify genuine

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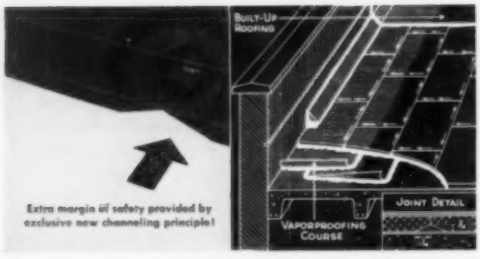
INSULATING SHEATHING

The Celotex Corporation, 120 S. LaSalle St., Chicago 3, Illinois

These Celotex Insulation Products Can Simplify, Improve, Cut Costs, On Your Construction Jobs!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JOINT DETAIL
VAPORPROOFING COURSE
Extra margin of safety provided by exclusive new channeling principle!

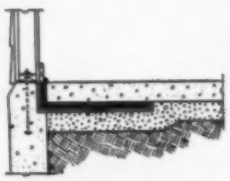
CELOTEX CHANNEL-SEAL ROOF INSULATION

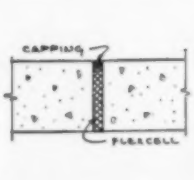
New safeguard against blistering, and separation of felt and insulation! Units form network of channels to permit equalization of air pressure throughout roof area. Asphalt-coated on both sides, all edges. Rigid, tough, yet light, easy to handle. Coated surface assures positive bond to both roof deck and roofing felt. Thicknesses for every job specification.

FLEXCELL* Bituminous Impregnated Cane Fiber Board

As PERIMETER INSULATION, Flexcell contributes toward a warmer concrete slab floor by reducing possibility of heat loss through floor edges.

Write Now for full data on various types of job-proved Celotex Cane Fiber Insulation:





As EXPANSION JOINT FILLER for driveways, walks, curbs, and gutters, Flexcell expands and contracts with concrete slab—is not affected by temperature changes . . . does not extrude, is maintenance-free!

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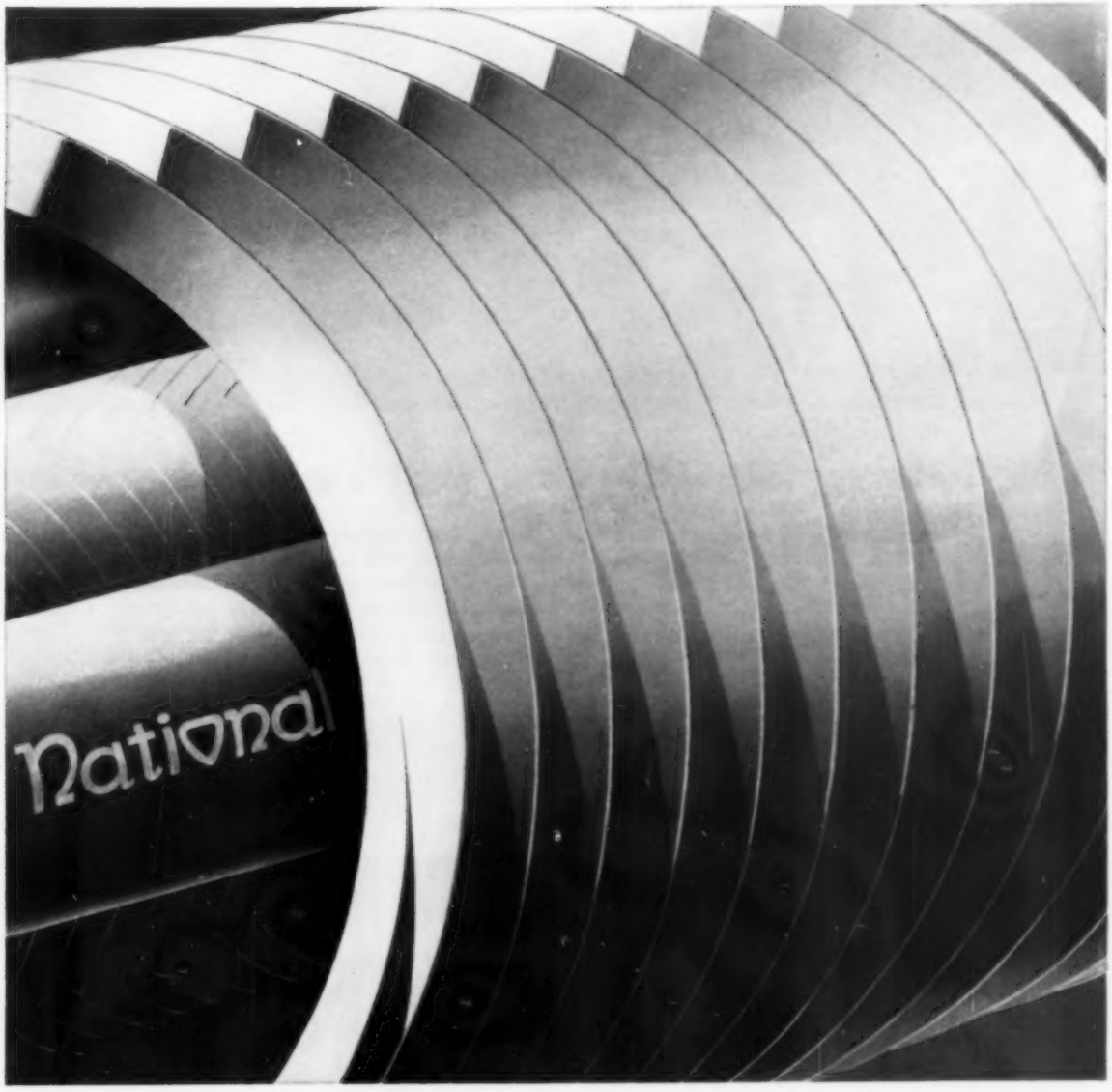

NO RUSTY THREADS to worry about with Sherarduct

The threads of Sherarduct are cut *before* galvanizing so that every hill and valley receives the same protective coating of zinc as the tube itself.

And Sherarduct Couplings, the key to a solidly locked, easily fished and thoroughly grounded electrical system, are tapped, then galvanized with the same painstaking care as the Sherarduct itself.

Sherarduct Couplings are carefully designed to permit conduit end to butt inside the coupling, giving strength and rigidity to the system and making a smooth, continuous raceway through which conductors can be drawn easily and without injury.

To find out more about Sherarduct's easy fishing, easy bending and lifetime corrosion protection, write for a free copy of the Sherarduct facts book . . . see why Sherardizing makes Sherarduct galvanized conduit at its best.

Sherarduct is Galvanizing at Its Best . . . Sherarduct is Galvanized Conduit at Its Best

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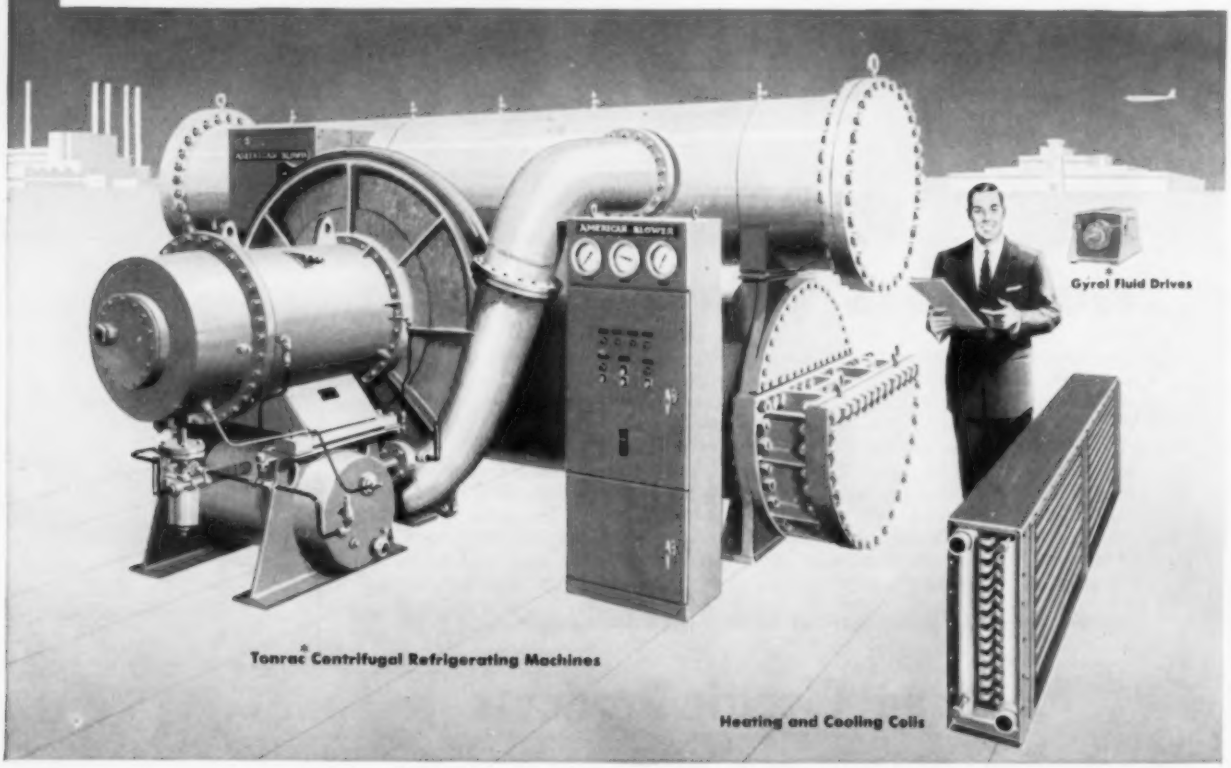

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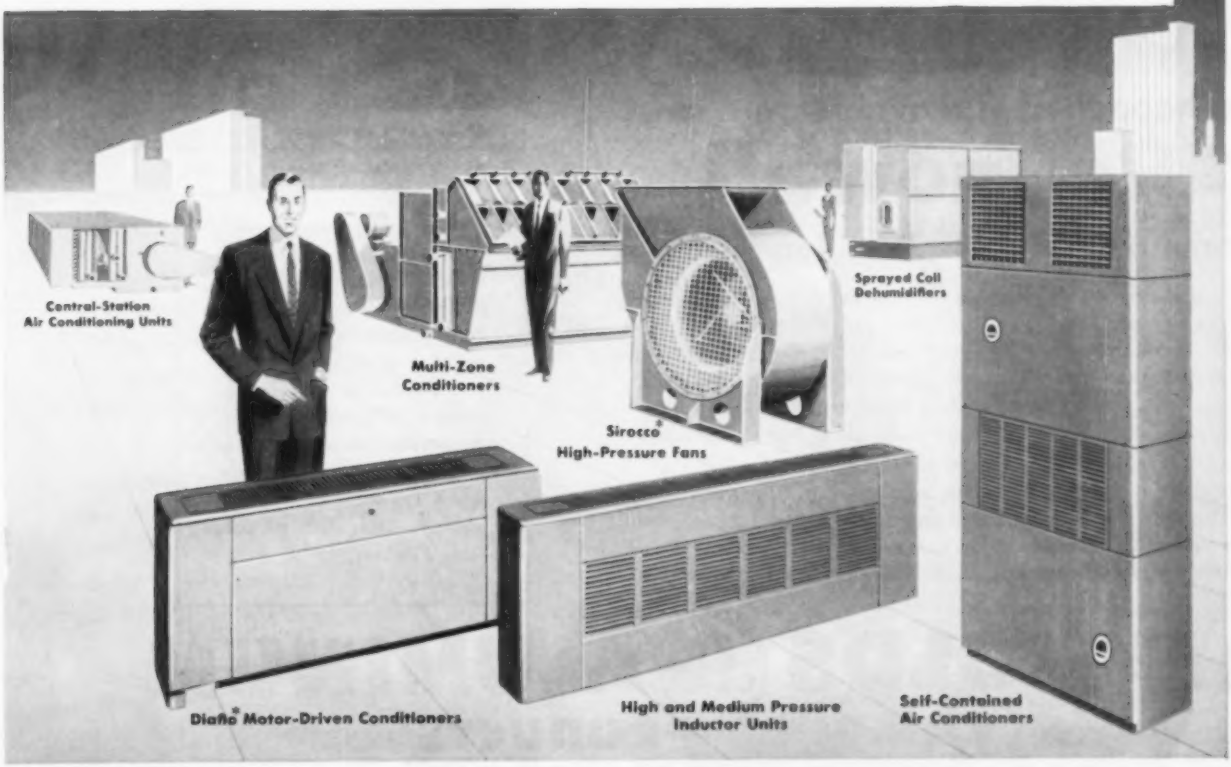
Air conditioning equipment for every business



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Something new and flexible has happened to movable partitions!

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Aluminum Movable Partition Systems

Here's the newest concept in economical metal partitions...strong, rigid, beautiful Reynowall! This system provides complete flexibility to meet any present plan and all future modifications. Simplicity of design assures fast installation and easy relocation. Cornice and ceiling-high partitions can be quickly cut down to lower height. Glazed railing units can be modified to low railing heights. All cutting can be done on the job.

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Framing members are strong, fluted aluminum extrusions. Panels are rigid, tray-like assemblies of embossed aluminum bonded to resin-impregnated kraft honeycomb cores. Maximum overall partition thickness, 2"—saves floor space. Provision for electrical wiring facilities within the partition members.

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Design of the VAMPCO Intermediate Projected Windows in the Monson Academy provides an abundance of daylight in the beautiful structure that adapts itself to the rolling Massachusetts terrain.

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A NAME THAT MEANS THE VERY FINEST IN LIFE-LONG ALUMINUM WINDOWS

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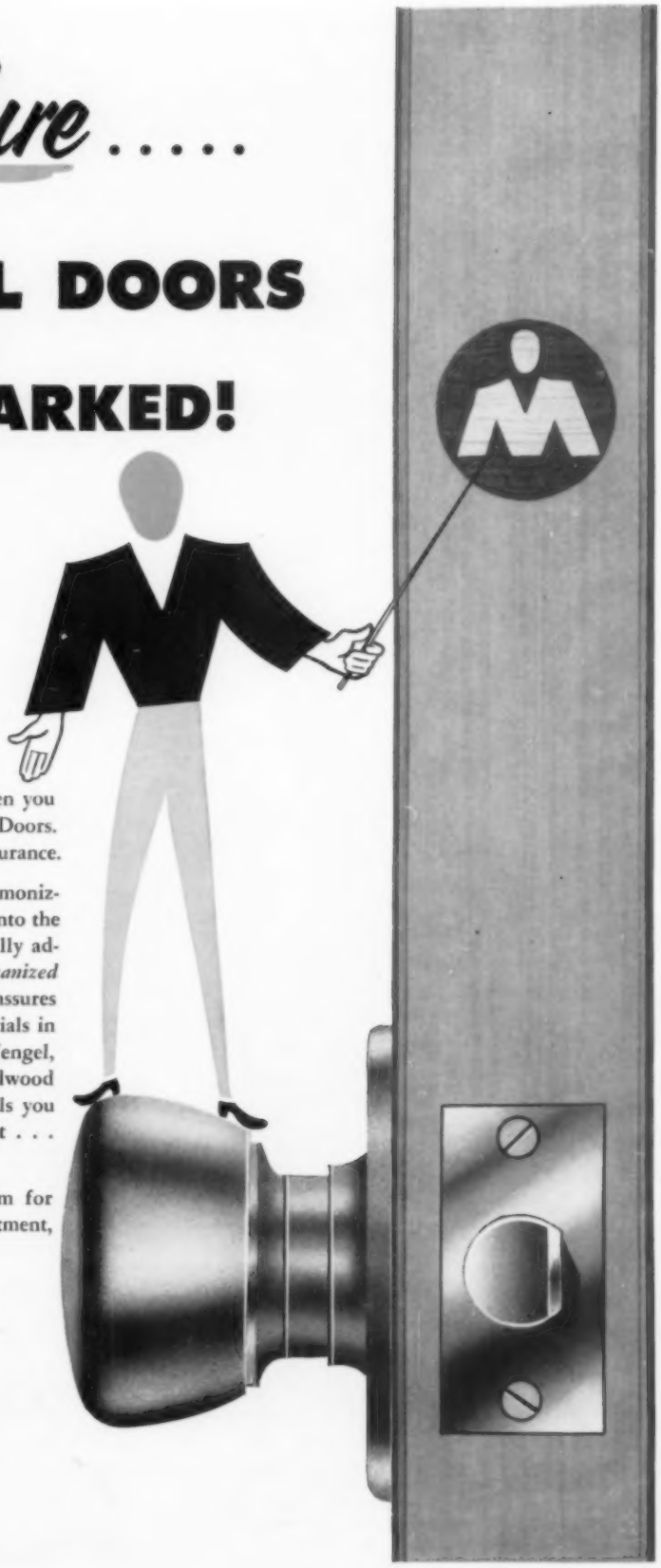
Now you can be *Sure* . . . . .

MENGEL DOORS
are
TRADE-MARKED!



NOW you can know . . . for sure—when you order Mengel Doors, *you'll get* Mengel Doors. The 'Mengel-Man' trade-mark is your assurance.

This famous symbol, in a distinctive, harmonizing wood dowel, is now built permanently into the stile of every Mengel Flush Door. Nationally advertised and recognized in Mengel *Permanized* Furniture, the 'Mengel-Man' trade-mark assures unquestioned workmanship and finest materials in Mengel Flush Doors. Assurance backed by Mengel, the world's largest maker of fine hardwood products. The 'Mengel-Man' trade-mark tells you now you're getting the quality you expect . . . when you specify Mengel Flush Doors!

Look for this symbol. It leaves no room for doubt . . . *or disappointment.* Door Department, The Mengel Company, Louisville 1, Ky.

Mengel Doors equal or exceed the requirements of Bureau of Standards specifications CS200-55

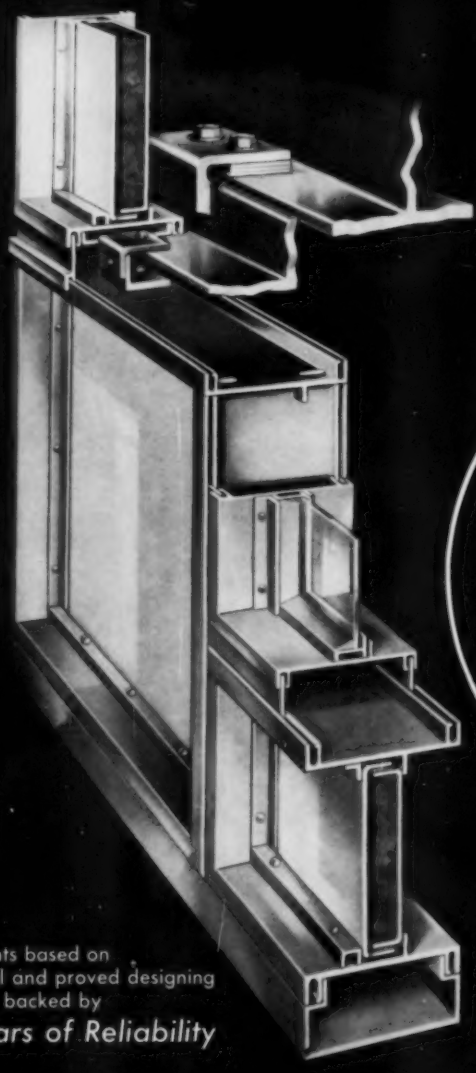
Today's Latest Advancement for Versatility of Application

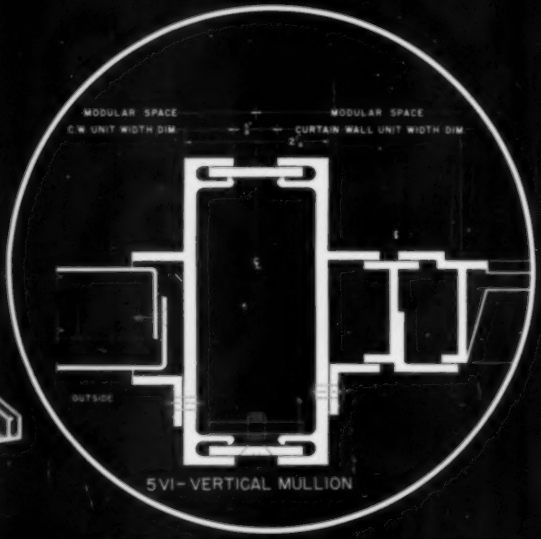
Bayley

Aluminum CURTAIN-WALL System

Modular or Conventional

Series A-450





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See Bayley's catalogs in Sweet's . . . aluminum windows 17a/Bay; and steel windows 17a/Ba; or ask us for individual reference-file copies. Write for special file on Bayley Curtain Wall Ideas, Designs and Details.

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Never before a CHALKBOARD like this!

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Chalk "flows on" with minimum pressure due to micro-fine, super-hard, "suede-coated" surface which also facilitates erasure; eliminates ghosts.

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Never needs replacement due to age . . . will not become shiny in a lifetime of normal use; cannot fade . . . completely resistant to moisture . . . cannot warp.

Easier, Lower Cost Maintenance

Quicker, "care-free" cleaning with water restores board to original efficiency; there are no deep pores to retain chalk particles; dulling is thus eliminated.

Porcenell Triumphs Over the Cost Problem to Bring All Wanted Features Within the Means of All! New materials, methods and lighter weight steels cut initial cost; make possible easier and lower cost installation.

NEW BENJAMIN PORCENELL

NOT slate, glass or plastic...
NOT conventional porcelain enamel...
NOT composition board...
it's an ENTIRELY NEW TYPE VITREOUS ENAMEL Chalkboard

SEND NOW for complimentary copy of booklet: "PORCENELL, A NEW ERA IN CHALKBOARDS." Use your letterhead or this coupon, address BENJAMIN ELECTRIC MFG. CO., DEPT. PA, DES PLAINES, ILL.

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Porcenell is a patented, vitreous process developed by Vitreco, Inc., a research organization jointly owned by Youngstown Sheet and Tube Co. and Poor and Company. The Porcenell development is the result of over 15 years and three quarters of a million dollars of research. In this product there has been achieved an entirely new, non-warping, lighter weight, finer, vitreous, hard chalkboard surface never before commercially available.

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"DIE LUX"

(PRESCOLITE'S trade name for precision diecast products.)

PRESCOLITE applies aeronautical and automotive die casting production techniques to the lighting industry for **STRENGTH • DURABILITY • APPEARANCE**

The fixtures illustrated above, and many more too, employ "DieLux" die castings as an integral part of the unit. 1. No. WB-24 Wall Unit. 2. No. 1313-6630 Recessed. 3. No. 500 Ring Fixture. 4. A-14 Swivel Unit. 5. No. 8585 Hospital Light. 6. No. R-54 Exit Light. 7. No. 750 Recessed. 8. No. 99 Eyeball Unit.

Write for your copies of the following PRESCOLITE literature: No. 9 (Recessed and Surface Fixtures), No. EX-1 (Exit Lights), No. LL-1 (Louver Lights), No. HD-1 (Swivel Lights), No. AE-3 (Drawings and Specs.)

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CUT ALONG DOTTED LINE AND SAVE FOR YOUR FILE

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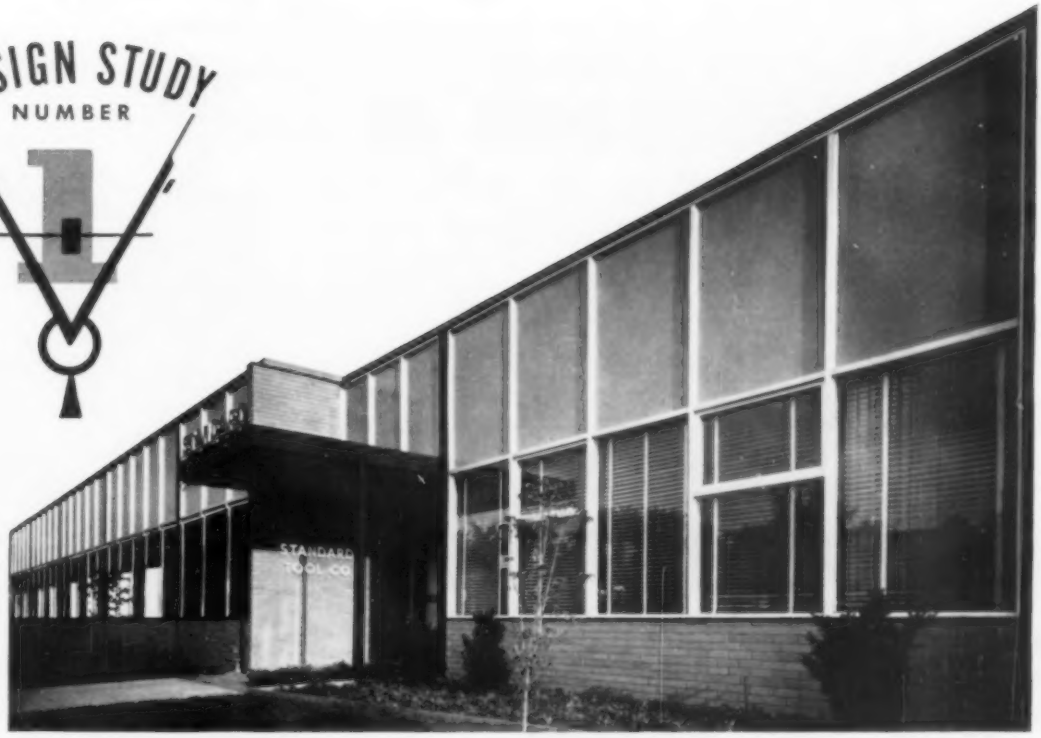
DESIGN STUDY
NUMBER 1



STANDARD TOOL COMPANY
Detroit, Michigan

Architect: Louis G. Redstone, AIA — Detroit, Michigan

Davidson "Double-Wall" Type "C" Porcelain Panels — Distributed and Erected by: The D. G. Garrison Company, Detroit, Michigan

TODAY the architect's building design is the result of coordinated planning to insure that every practical requirement is considered.

Significantly too, the above building design includes Davidson Architectural Porcelain — a material that is maintainance-free as well as offering flexibility to the architect's design. Whatever the application of architectural porcelain, you can rely on Davidson's experience to bring you the utmost in modern porcelain panels to effectively meet your design requirements.

DAVIDSON ENAMEL PRODUCTS, INC.
1119 EAST KIBBY STREET • LIMA, OHIO

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Davidson

DAVIDSON ARCHITECTURAL PORCELAIN

ARCHITECTURAL PORCELAIN

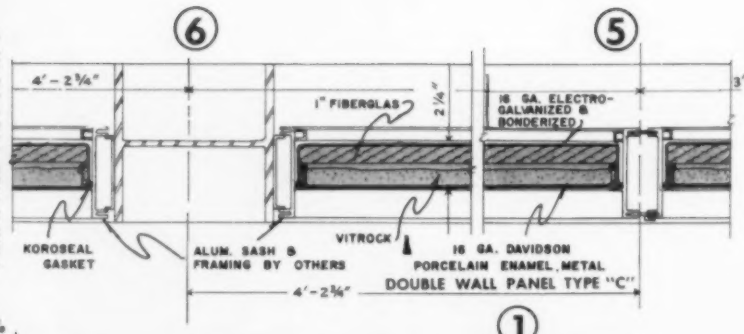
the modern building material . . .
engineered for Architects

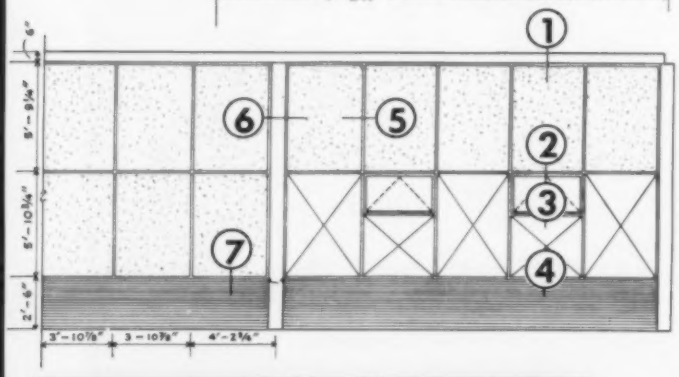
See next page for study of porcelain construction details of the building shown above.

Watch for Design Study Number 2 which will appear in this publication in June.

A.I.A. FILE NO. 15-M-1

A.I.A. FILE NO. 15-M-1

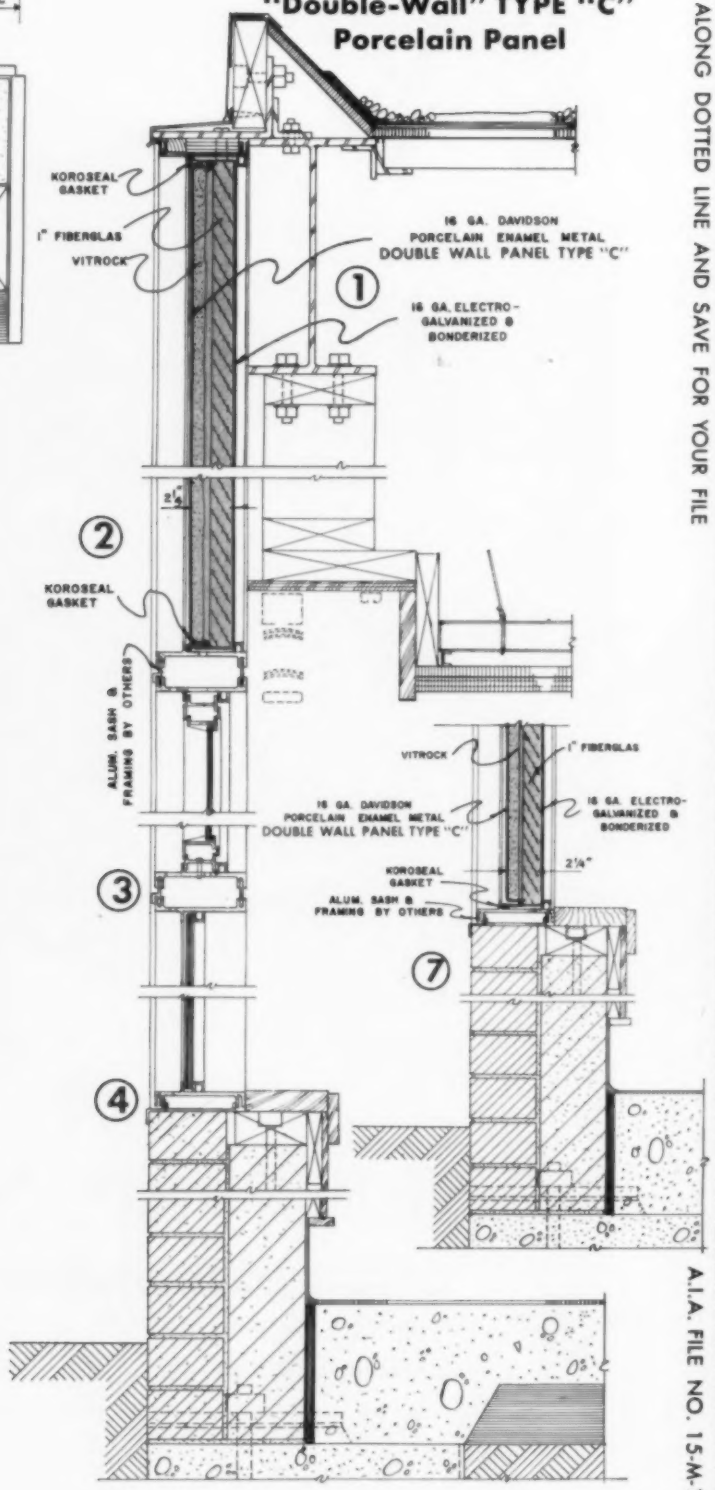




DESIGN STUDY NUMBER 1

Davidson

"Double-Wall" TYPE "C" Porcelain Panel



DESIGN STUDY 1

DAVIDSON ARCHITECTURAL PORCELAIN

DESIGN & DETAIL STUDY OF ARCHITECTURAL PORCELAIN

Standard Tool Co., Detroit, Michigan

For further information on the application of Davidson Architectural Porcelain check the following:

- ☐ Full scale drawings showing the application of Architectural Porcelain for the Standard Tool Company, Detroit, Michigan
- ☐ Detailed, 16-page Architectural Catalog, 1956 Edition
- ☐ Porcelain Panels for Store Fronts
- ☐ Porcelain Panels for Shopping Centers
- ☐ Porcelain Panels for Schools
- ☐ File of Typical Construction Details
- ☐ Reference File Jacket on Architectural Porcelain
- ☐ Reprints of this Study #1. Quantity _____

DAVIDSON ENAMEL PRODUCTS, INC.
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CUT ALONG DOTTED LINE AND SAVE FOR YOUR FILE

A.I.A. FILE NO. 15-M-1

How new heating and ventilating system cuts schoolroom construction costs . . .

Dunham VARI-AIR Unit, concealed in mixing flue behind blackboard, mixes fresh and recirculated air—silently diffuses it to classroom through overhead grille.

Dunham VARI-AIR—designed to help the "hard-pressed" budget . . . and save valuable floor space

School construction costs can't go anywhere but down when Dunham VARI-AIR heats and ventilates classrooms. This new system satisfies all health and comfort standards . . . does it at a cost that meets with full approval of any school board member.

In addition to healthful, silent heating and ventilating, VARI-AIR puts school air conditioning within easy financial reach of construction budgets. This optional use of VARI-AIR can be economically provided for when the system is installed.

Offers Numerous Advantages

Lower Costs: Dunham VARI-AIR eliminates need for in-the-room cabinet ventilators . . . provides greater savings in classroom heating construction costs. Total absence of complex controls saves both first and maintenance costs.

Minimum Temperature Variations: Dunham's centralized temperature control system holds room temperatures within prescribed limits by automatically compensating for weather change and heat loss.

Space Saver: No floor space in classroom is given over to either heating or ventilating with a Dunham VARI-AIR system.

How VARI-AIR Operates

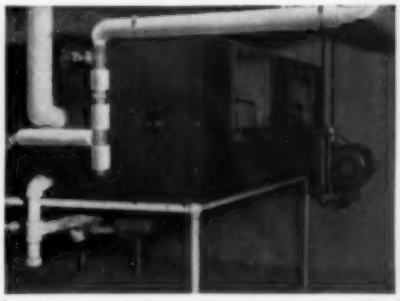
Only three primary parts to the system. VARI-AIR Units are concealed in wall spaces, mix fresh and recirculated air and diffuse it into classrooms.

Heating and Ventilating Unit—generally one to the entire system—pulls in fresh outside air, tempers, filters and discharges it through a tunnel or ceiling plenum to the VARI-AIR Unit.

Radiation—Dunham THERMO VECTOR® "along-the-wall" radiation saves floor space and provides all necessary heat whether used with steam or hot water.

For complete information, contact any Dunham Representative or mail the coupon.

Dunham Finned-Pipe Radiation runs along outside walls, under windows to eliminate chilling downdrafts, save premium classroom floor space.



Dunham Heating and Ventilating Unit pulls in outside fresh air and tempers, filters and discharges it through a tunnel or ceiling plenum to VARI-AIR Units.

Dunham VARI-VAC® Temperature Controls provide centralized operating station for *all* system settings and readings. This electronic "brain" helps system save up to 40% on fuel.

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Dept. PA-3, 400 W. Madison Street
Chicago 6, Illinois
Please send VARI-AIR literature.

Name_____

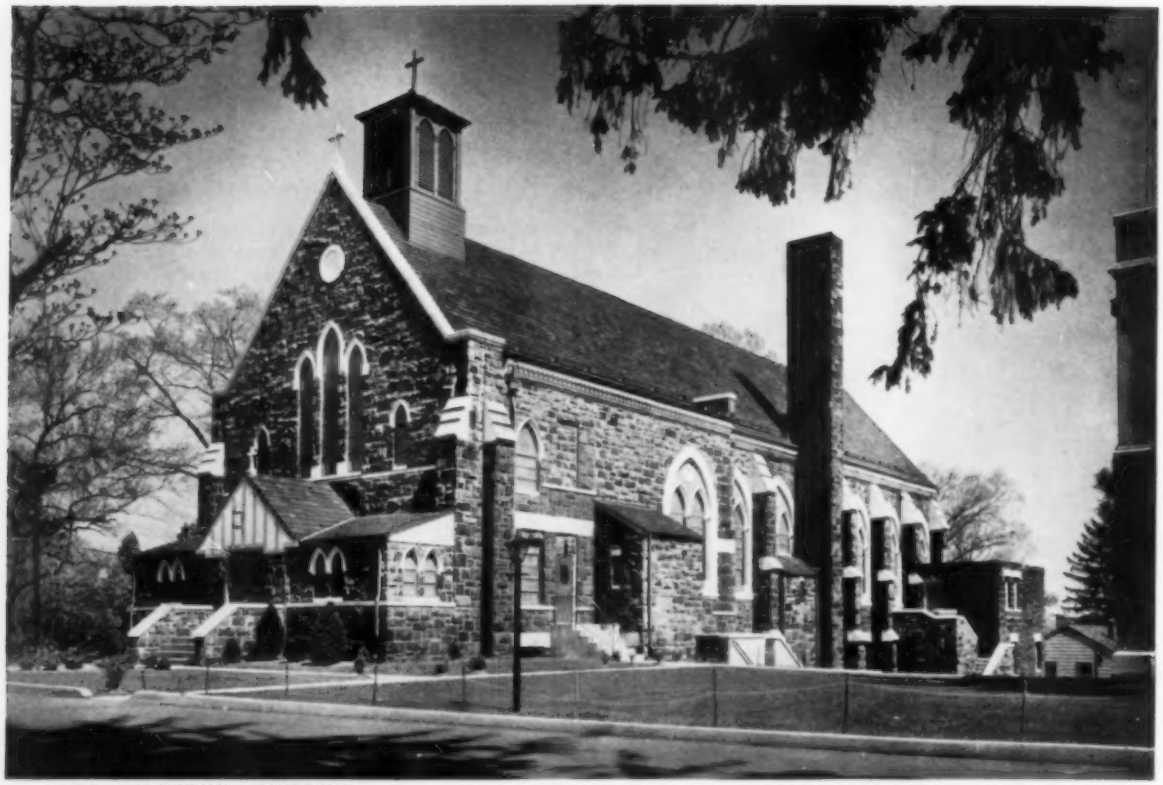
Company_____

Address_____

City_____ Zone____ State_____

CUT ALONG DOTTED LINE AND SAVE FOR YOUR FILE

A.I.A. FILE NO. 15-M-1



ST. JOSEPH'S CHURCH
PARAMUS, N. J.
Ricker and Axt—*Architect*
Romagnino Constr. Co.—*Builder*
Extensive trim is white unglazed Architectural Terra Cotta.

OUR LADY OF FATIMA
PHILADELPHIA, PA.
Four Terra Cotta figures by Stefan De Vriendt, sculptor.

CATHEDRAL DAY SCHOOL
SAVANNAH, GEORGIA
Ben P. Ritzert—*Architect*
Byck-Worrell Constr. Co.—*Builder*
Panel behind polychrome Terra Cotta cloud and figure is 1¼" Ceramic Veneer. Cross is Ceramic Veneer in metallic gold.

Architectural inspiration, religious interpretation, in Architectural Terra Cotta!

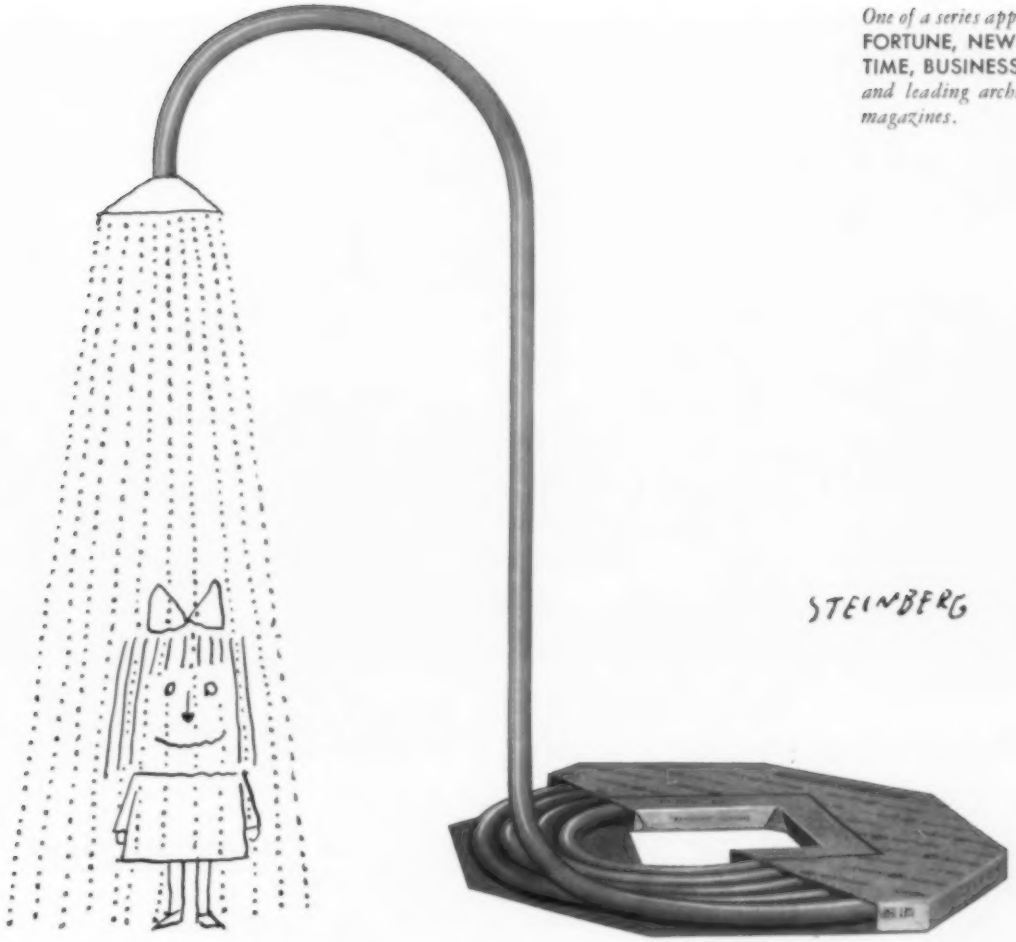
The creative challenge of church design is simplified when you create in Architectural Terra Cotta. Custom-made by Federal Seaboard, this time-proved building material meets your specifications precisely... for interiors or exteriors—sculpture, plain surfaces or polychrome panels. Your choice of ceramic colors and textures is virtually unlimited. Architectural Terra Cotta's unrivaled versatility enables you to combine it impressively with other materials. Moreover, the original richness and beauty can be retained indefinitely by simple soap-and-water washings. New "Religious Building" brochure is now on the press. Write for your free copy today.

Construction detail, data, color samples, estimates, advice on preliminary sketches, will be furnished promptly without charge on Architectural Terra Cotta and Ceramic Veneer.

FEDERAL SEABOARD TERRA COTTA CORPORATION

10 East 40th St., New York 16, N. Y.
PLANT AT PERTH AMBOY, NEW JERSEY

One of a series appearing in FORTUNE, NEWSWEEK, TIME, BUSINESS WEEK *and leading architectural magazines.*



fastidious

How to keep the Fountain of Youth from Aging...

Lewin-Mathes Seamless Copper Tube and Pipe showers its benefits in a pure, steady stream on a little girl. And decades later, it will show equal regard for her grandchild.

Through the years, the Lewin-Mathes installation performs like new without maintenance because—as Copper Tube *Specialists*—we build Copper's resistance to everything except flow. Lewin-Mathes' fastidious-minded inspectors — at every operation throughout our *completely integrated plant*—demand shiny smooth surfaces *inside* as well as outside our products.

When installing piping materials, be sure that your *first* cost is your *last* cost. Ask your architect, designer or engineer to specify Lewin-Mathes.

LEWIN MATHES

SAINT LOUIS, MISSOURI

MANUFACTURERS OF
COPPER AND BRASS TUBE, PIPE AND ROD

Chicago apartment building installs

UNARCO dual-vectors to "beat the heat"

Easy to install . . . The UNARCO dual-vector is easily fitted between studding. The unit contains heating and cooling coil, blowers, motor and controls—and is available in Model DV-60 (shown) and Model DV-120 (of larger dimensions and capacities).

The people who live in this apartment will enjoy year around UNARCO weather conditioning. In winter, clean, even, hot water heating; and in summer, cool, filtered and dehumidified air—ALL FROM ONE SYSTEM.

That's because new UNARCO dual-vectors, each with its own control knob, allow you to select the exact temperature desired for each individual room. The UNARCO "hydro-pac" water chiller supplies the cooled water and your boiler provides heated water for the system.

Truly revolutionary, this new development offers the luxury and comfort of weather tailored to the needs of each member of the family. Most surprising! This combination heating and cooling is available at little more than the cost of a hot water heating system alone.

Builders! Contractors! Architects! The UNARCO dual-vector offers you a fine opportunity to broaden your markets by offering the finest in heating and cooling facilities available today. Write NOW for detailed information regarding cost, design and operational data! Address: Dept. 101-D, HEATING & COOLING DIVISION;

UNION ASBESTOS & RUBBER COMPANY
332 S. Michigan Avenue Chicago 4, Illinois

UNARCO dual-vectors
provide year 'round
weather conditioning

FOR CHAMPIONSHIP POOL LIGHTING

Kirlin SYSTEM

BUILT-IN *Lighting*

EXTRA WIDE ANGLE LENS FOR WIDE DISTRIBUTION OF LIGHT RAYS

In this Wyandotte (Michigan) Memorial Pool, Architect Robert Szoboda and Engineer Thomas Black decided on a light intensity on the water of 38 f.c. They specified Kirlin #1212 R-W —300 W fixtures which can be relamped from above the 20′ ceiling.

USE THE CHAMPION OF LIGHTS

Pool at the Orchard Park (New York) Central School uses #1218 R-W 500 W Kirlin Fixtures in 22′ ceiling to secure 14.2 f.c. intensity on water. Relamping from above ceiling. Architects: Harbarch, Swain and Clark; Engineers: Beman and Candee.

Kirlin #1212 R-W 300 W fixtures were used in the Allen Park (Michigan) High School pool. The architects, Eberly M. Smith Associates, secured 14 f.c. intensity uniformly on the water due to the wide angle lens even though fixtures border edge of pool for relamping from below.

First you want to get just the right amount of light on the water. But you must examine costs – installed cost – maintenance cost AND the cost of electricity. When the lighting for your pools delivers the desired foot candles at the lowest cost and does this year after year, you then have *championship lighting.*

Consider the many pools, large and small, lighted with the KIRLIN System, as typified by the three shown here. At least 70% useful light is delivered by each lamp due to the Alzak GlasSurfaced reflector and Kirlin prism lens. This has been proven time and again in many different types of installations. Light from the highest point possible and with extra wide distribution, utilizes the light more effectively . . . Maintenance is at a minimum because fixtures can be relamped as easily from above the ceiling as below. Shock resistant glass keeps down damage and replacement expenses. No part of the fixture dangles from the ceiling, which eliminates dusting and increases the apparent ceiling height. Fixtures also may have aluminum boxes and all parts are rust and moisture resisting . . . You score on installed costs, too. Regular rubber-covered building wire is run direct to the heat-insulated junction box. No asbestos is required.

Specify the KIRLIN System, Champion of Lights, for Championship Pool installations.

OTHER REASONS FOR SPECIFYING KIRLIN

- Made in all sizes — square or rectangular — and in Fluorescent.
- UL and IBEW Labels.
- In stock at leading wholesalers.
- Wide-angle or concentrating lens.
- Hinged rust-resisting doors in die cast frames suitable for outdoor locations.

CATALOG FOR AIA DATA FILE ON REQUEST

LARGEST SELLING RECESSED LINE—MILLIONS IN USE EVERYWHERE

The KIRLIN CO. 3435 E. JEFFERSON AVE. DETROIT 7, MICHIGAN

MAMARONECK JEWISH CENTER MAMARONECK, NEW YORK

designed by charles

eames

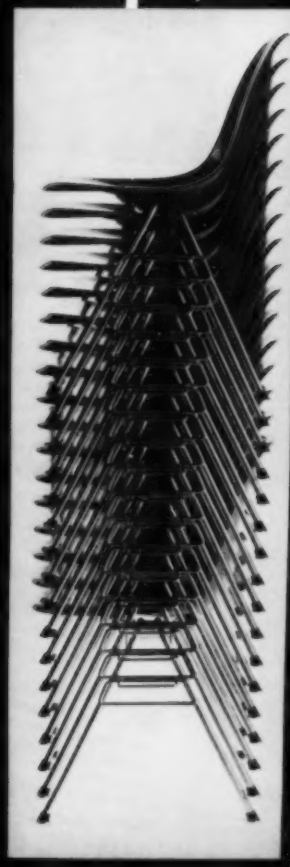
stacking chair

hooking device maintains chairs in orderly rows for uniform appearance.

for use in auditoriums, hotels, schools, hospitals, lecture halls, libraries, cafeterias, community centers.

the utility of
the stacking chair
is now combined
with great comfort
and durability.
flexible
multiple seating
which stacks
vertically
and requires
minimum storage space.

plastic shells,
variety of colors.



dept. PA-36 HERMAN MILLER FURNITURE CO., ZEELAND, MICH.

☐ We would like additional free information about the Eames stacking chair.

Please send us a copy of the new Herman Miller Catalog showing the complete H. M. collection. Check for $5.00 is enclosed ☐ Bill us ☐

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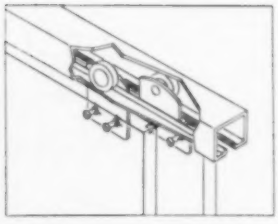
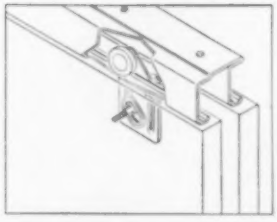
One Source for All Types of Sliding Door Hardware...

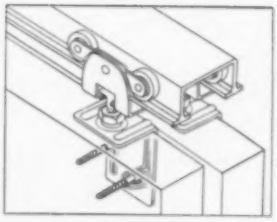
Grant makes sliding door hardware for every price, weight and function



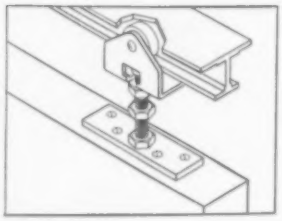
Bantam 900 for lightweight panels, thin as ¼ inch, in wardrobes, light partitions.



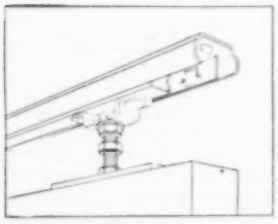
Rocket 1000: the economy full line, completely packaged. Loads up to 50 lbs.



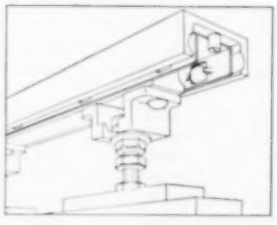
Grant 7000 is the standard line for excellent residential use. Weights to 100 lbs.



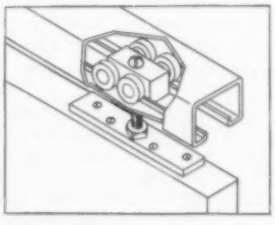
Grant 1200: the standard heavy-duty line. For doors and partitions up to 175 lbs.



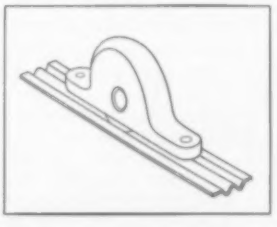
Grant 5000: In the lighter models, the custom hanger for deluxe door use.



Grant 5000: The heavier models support doors and walls up to 300 pounds.



Accordion: newly popular again for handsome folding partitions. Up to 50 lbs.



Sheaves and Tracks where overhead support is not desired. Lowest cost.

And it's all in here!

Here's the easiest-to-use, most complete catalog we know of, in keeping with the most complete line of sliding hardware made. Write for your copy.

Grant

PULLEY AND HARDWARE CORPORATION
31-67 Whitestone Parkway, Flushing, N. Y.

FOAMGLAS®

the cellular, stay-dry insulation

STAYS DRY—Cut a piece from your sample. Place it in water. Note how the hermetically-sealed glass cells filled with dead air keep it afloat. Weight it down for days, weeks or longer if you like. Remove the weight and it bobs back to the surface . . . proof that the sealed cells have absorbed no water, still have their original insulating efficiency.

VAPOR-PROOF — With a nail file, cut a ¼" thick slice from your sample. Hold it to your lips and try to blow smoke through it. The smoke won't penetrate . . . proof that FOAMGLAS is a positive vapor barrier in itself.

STRONG AND RIGID — Place your FOAMGLAS block on the floor. Stand on it. Note how it supports your weight without crushing. Compressive strength is over seven tons per square foot . . . making it ideal for load bearing applications.

WON'T BURN — Hold a flame to your sample. You'll see at once that it does not burn . . . an important safety feature in all construction. It's even acid-proof and rodent-proof as you can prove if you happen to have a vial of acid or a pet rat handy.

Send for a sample and make these simple tests!

Prove to yourself that FOAMGLAS is your ideal insulation!

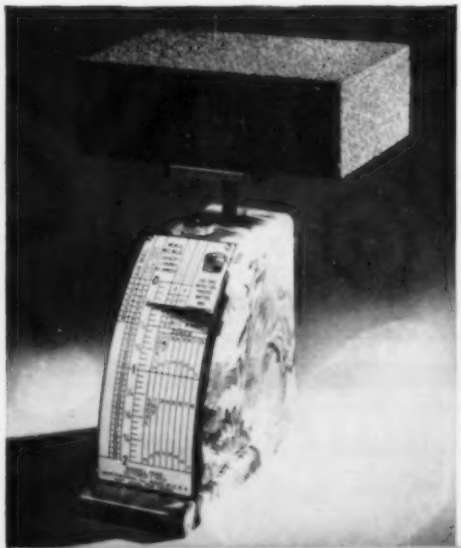
Let us send you a free sample of FOAMGLAS. Use it to make the few simple tests illustrated. You'll prove that this unique cellular glass insulation has exactly the right combination of properties to assure you of these vital benefits: constant insulating efficiency . . . long, maintenance-free life . . . strength and rigidity for a variety of structural applications . . . ease of handling and installation.

Thousands of actual users have proved in actual performance the benefits so clearly demonstrated by these tests. No wonder, then, that new users every day are picking FOAMGLAS to insulate the roofs, ceilings, walls and floors of all types of buildings, low temperature spaces, piping and equipment. Send for a sample today and make your own tests. Use the handy coupon, or write . . .

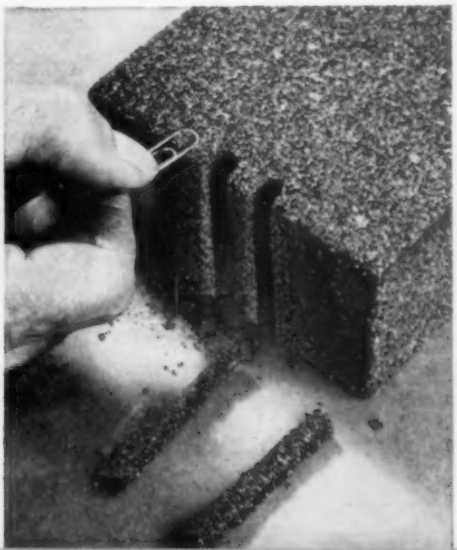
Pittsburgh Corning Corporation

Department AB-36, One Gateway Center
Pittsburgh 22, Pa.
In Canada: 57 Bloor Street West, Toronto, Ontario

LIGHT WEIGHT — Just pick up your sample to see how light and easy to handle it is. Check actual weight on your company's postal scale if you wish. The density of FOAMGLAS is only 9 pounds per cubic foot.



EASY TO SHAPE AND CUT—Shave some strips off your sample with an ordinary paper clip . . . workmen use knives, saws or trowels for quick shaping and fitting on the job.



Pittsburgh Corning Corporation
Dept. AB-36, One Gateway Center
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Please send me a sample of FOAMGLAS for testing.

Name_____

Company_____ Title_____

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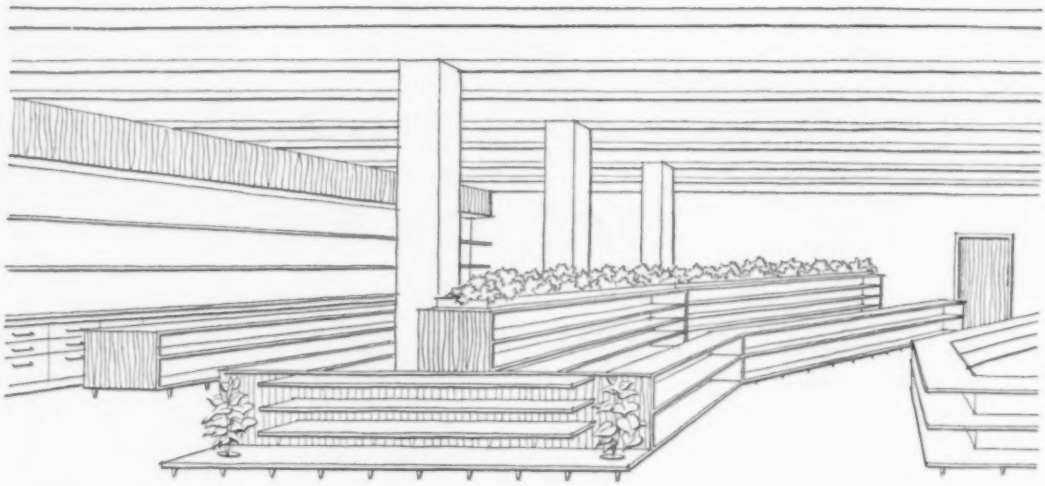
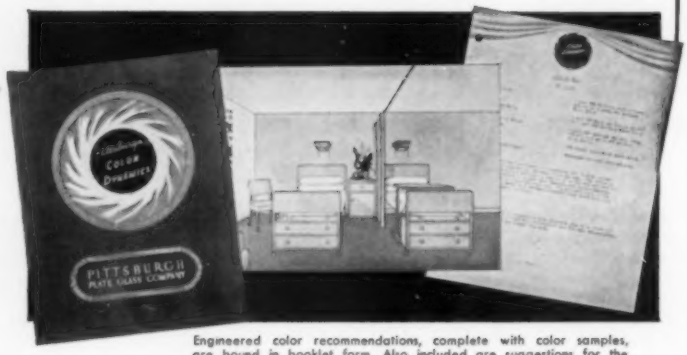


You Can Get a Complete

Engineered Color Study for Your Plans–FREE!



Engineered color recommendations, complete with color samples, are bound in booklet form. Also included are suggestions for the correct types of coatings for every kind of material and construction.

YOU can often make your plans more acceptable to your clients by including a detailed color program.

● **Almost everyone** who owns or operates an industrial, commercial or service enterprise recognizes the importance of the influence of color upon people. That's why such a detailed program of color recommendations often can be very helpful.

● **Why not let us submit** *engineered* color recommendations to go with your plans? These recommendations are based upon the principles of Pittsburgh's system of COLOR DYNAMICS®. This method of painting has successfully demonstrated its ability to improve productive efficiency, morale and well-being in many fields.

● **We'll be glad** to make such a detailed study for you without cost or obligation. Simply call your nearest Pittsburgh Plate Glass Company branch and arrange to have one of our color consultants see you at your convenience. Or mail coupon at right.

For Additional information on COLOR DYNAMICS see Sweet's Architectural File, Section 14/Pi.

MAIL THIS COUPON TODAY

Pittsburgh Plate Glass Company
Paint Division, Dept. PA-36
Pittsburgh 22, Pa.

Gentlemen:

☐ Please have your representative provide us with further information about Pittsburgh's free COLOR DYNAMICS engineering service for architects.

☐ Please send free copy of your booklet on COLOR DYNAMICS for ____industry; ____hospitals; ____schools; ____commercial buildings.

NAME_____

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PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

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Want control for Water Heaters or Heat Exchangers?

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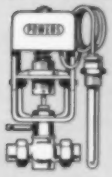
FLOWRITE
One of Powers Premium Quality Diaphragm Control Valves. They're simple, sturdy and dependable.

POWERS CONTROL

Over 60 Years of Temperature and Humidity Control

(c22a)

You Will Insure Better Temperature Control IF— you use the right type regulator and proper size control valve. Whether a simple self-operating regulator shown at left is required or the air operated controls featured here . . . you can get both types and others from Powers. For further information call or write our nearest office.



Powers ACCRITEM Temperature Regulator and FLOWRITE Valve—the right combination for many control problems where pressure and load conditions fluctuate widely, also for control of large size valves.

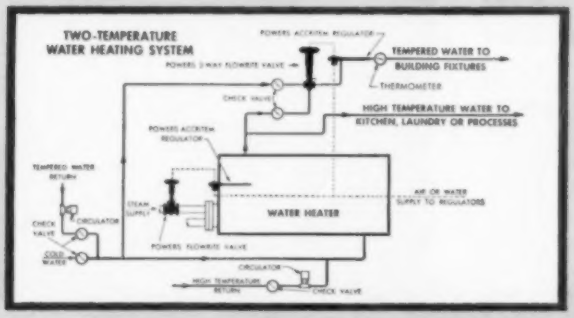
Over 50 Years Experience making this type of regulator

Control Point easily changed

Air or water operated

Ranges 50 to 250°F—150 to 350°F

VALVES: Available in a variety of body types and inner valves.



ACCRITEM TEMPERATURE REGULATOR

Gives Close Control and Years of Dependable Service.

- Has Adjustable Throttling Range and Calibrated Dial.
- Simple, Durable Construction assures years of trouble-free service.
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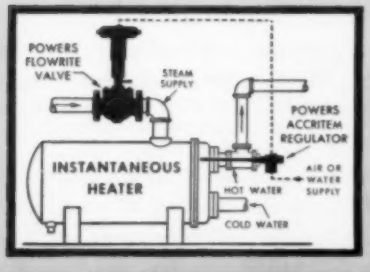
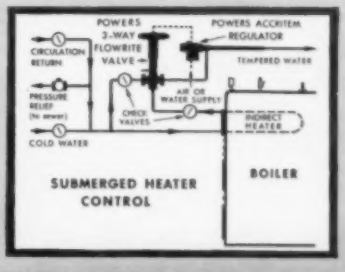
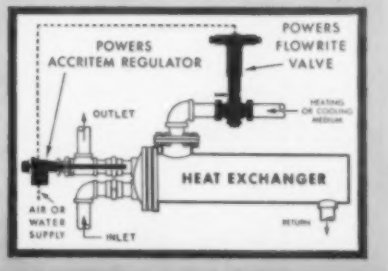
- Small Size: Regulator head is 2⅞" wide, 3⅝" high, bulb is 12" long with ½" IPS Connection.

Fully Described in Bulletin 316. Write for a copy.







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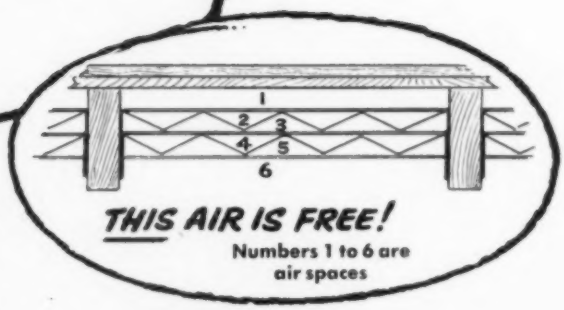
WHO SAID AIR IS FREE?



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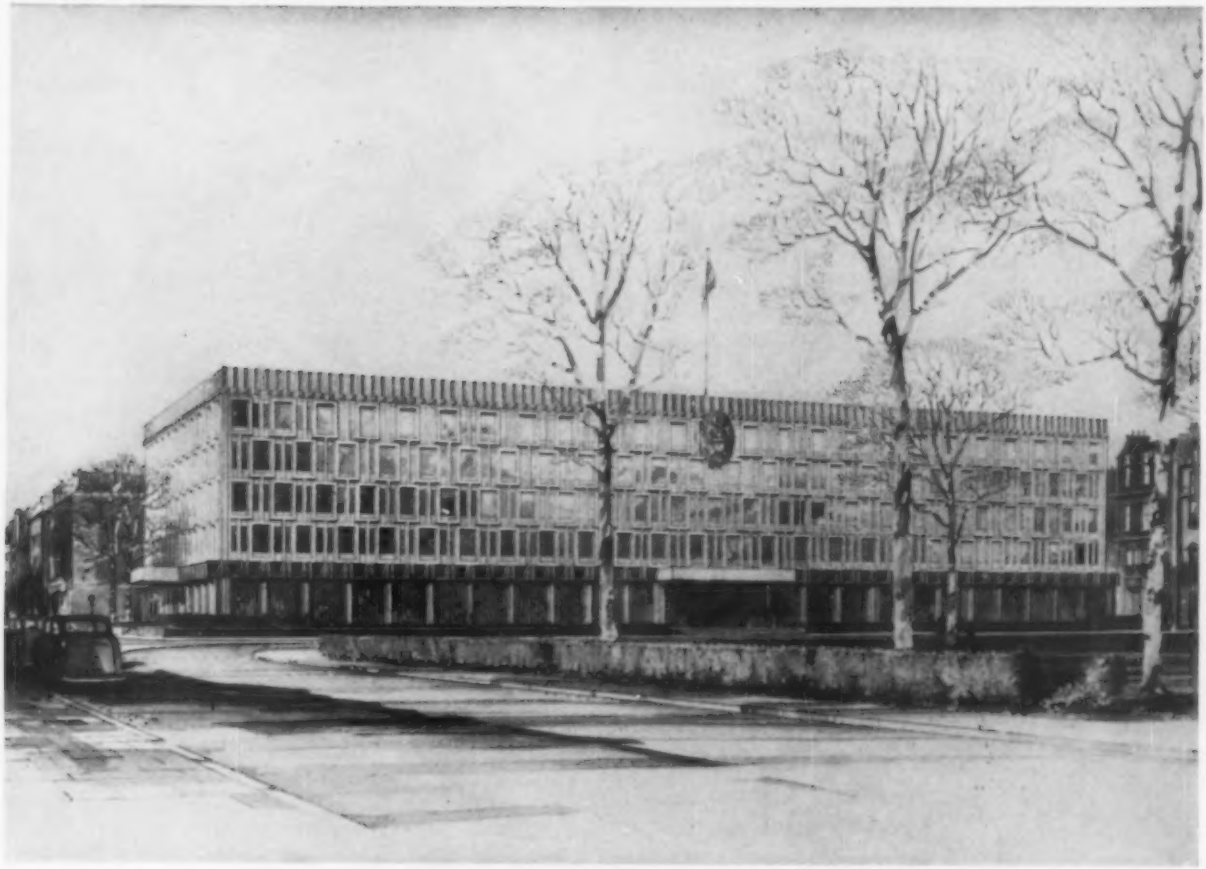
Type 4-PS about 8¢ sq. ft.



SAARINEN TO DESIGN EMBASSY

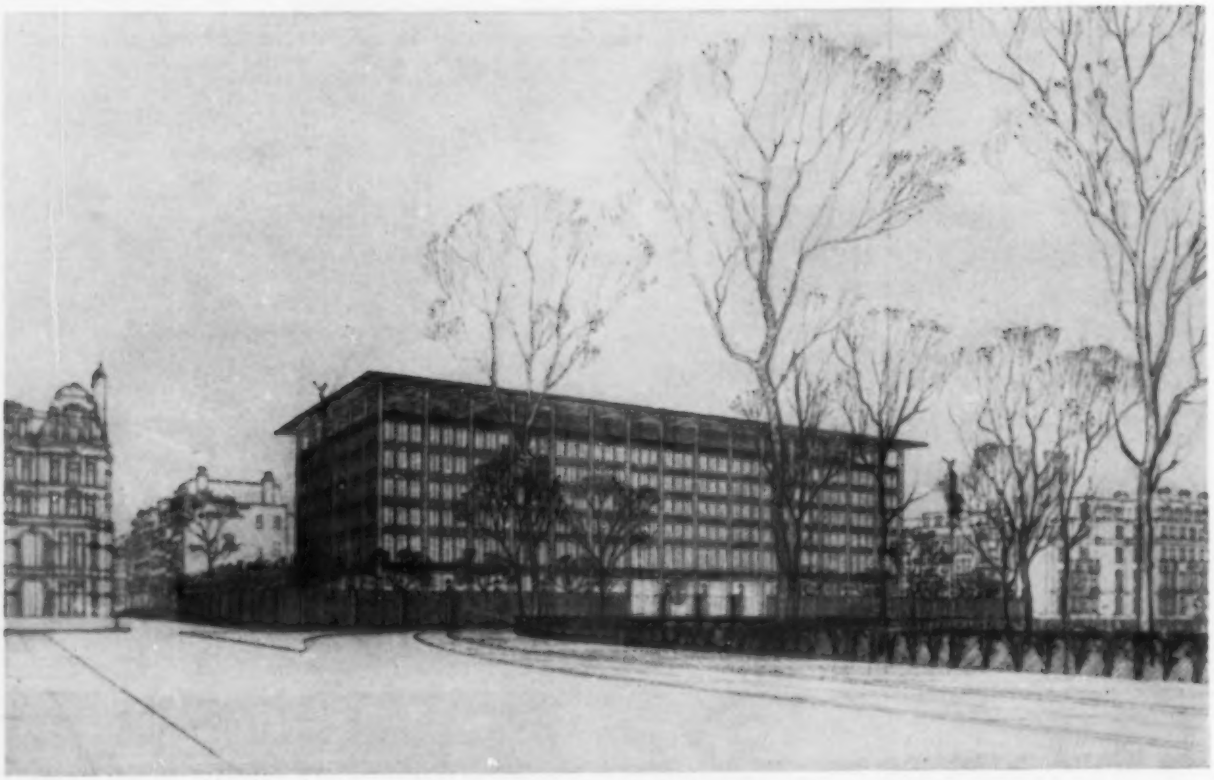
WASHINGTON, D.C., Feb. 20 — On the basis of his submission (*above*), Eero Saarinen has been named winner of the State Department's competition to select an architect for the new American Embassy in London.

Saarinen (*right*) and eight other U. S. architects were invited to enter the competition, which required the design of a building —in the contemporary idiom—to harmonize with its Grosvenor Square surroundings. The present Embassy, located on the east and opposite side of the square, will be sold upon completion of the new structure in mid-1958.

Special commendation was awarded to Edward D. Stone by the Jury composed of Pietro Belluschi, Henry Shepley, and Col. Harry McBride (Chairman), all of the State Department's FBO architectural advisory group; Ralph Walker, representing the AIA; and three State Department officials.

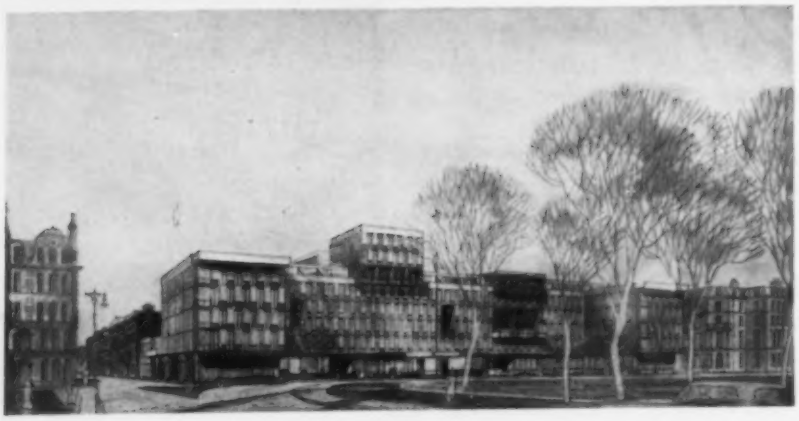
The eight competition submissions (*above* and *following pages*) were photographed at the State Department in Washington by Robert Phillips: Black Star.

LONDON EMBASSY COMPETITION



Submission by Edward D. Stone won Special Commendation

Submission by Hugh Stubbins, Jr.

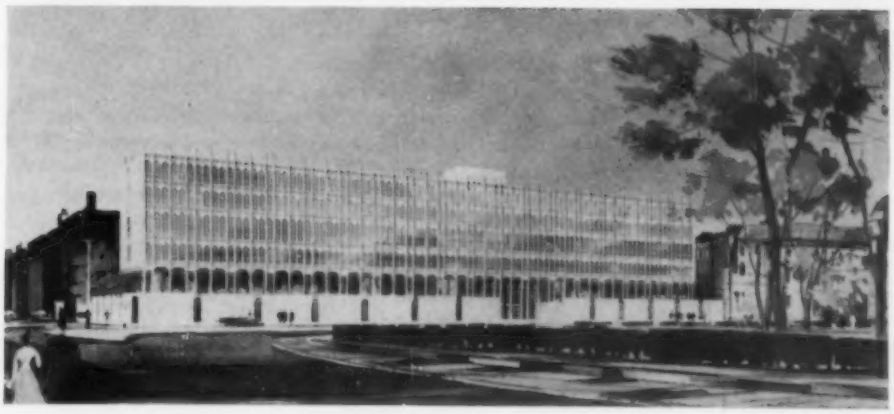


Submission by José Luis Sert

Submission by
Anderson & Beckwith

Submission by
Ernest J. Kump

Submission by
William W. Wurster



Submission by
Minoru Yamasaki

Washington Report

by Frederick Gutheim

Finding a site here and deciding what to build in the way of a cultural and convention center is a fascinating springtime activity for a 21-man Commission, whose report to Congress is due with the cherry blossoms before May 1. The Commission is made up of representatives of Congress and Presidential appointees. Set up last year, it still has no money—and got off to an understandably slow start—but the original assignment of the National Civic Auditorium Commission has since been extended for three months, and an appropriation for $125,000 for its planning work seems assured. While many difficulties remain, a promising beginning has been made on a public undertaking of great national importance.

The Capital is deplorably lacking in major cultural facilities. It also lacks, of course, the political power to initiate projects like the St. Paul arts center, the Rochester or Syracuse auditoriums. It has no opera house, no symphony hall, no civic theater. Despite the importance of the city as a convention center, it has no convention hall. Periodic events of great national significance, including the President's Inauguration and the Inaugural Ball, take place in improvised shelters or makeshift locations. These conditions have resulted in frequent humiliations. Sadler's Wells Ballet, for example, has to choose between the convention hall of the Daughters of the American Revolution, totally lacking in stage arrangements, or a movie theater where the ballet scenery is marshalled in an alley under tarpaulins. After a few struggles against hostile physical environment, major opera by-passes the capital.

There are governmental and international overtones as well. When the much-publicized Salute to France (a co-ordinated display of theater, dance, music, and art) visited Paris last spring, the prospect of a reciprocal gesture by the French in Washington was quickly scotched. Experts in the field of communications have pointed out that no major cultural opening for the appreciation of Asian, African, or South American arts, for example, could be made until these unfamiliar performances could be presented in surroundings calculated to emphasize their interrelationships and essential unity. To the U.S. Information Program, busily engaged overseas in dissolving the image of the United States inhabited by gum-chewing barbarians, the conspicuous lack of cultural facilities in the national capital is a perpetual embarrassment. U.S. aid has helped Berlin, Vienna, and other cities re-establish opera houses, but it has done nothing at home.

Such considerations set an international standard for what is about to be recommended here, a standard one suspects the Commission itself has not yet fully appreciated. Indeed, they might have done well to travel around the world a bit and get some idea of the real magnitude of their task. Or, at the least, interview the cultural-relations attachés of the local embassies. It should be clear that the problem is essentially a qualitative one. To create a concert hall that is musically significant, acoustically outstanding among the world's great music rooms, a dignified and socially attractive place of assembly, admits little compromise with such considerations as other uses to which the space may be put, the size of its audience, its location, or similar factors. If a theater is to be created where the building itself has a genuine influence upon the audience, actors, and even the playwright, that must be the paramount objective, accepted by the architect and by all concerned. Having convinced the world that we are rich and powerful, cost can hardly compromise with quality. Whatever we do must aspire to be the best of its kind.

So far, this has not been the direction in which the Commission and its planning staff have been thinking. Headed by Pereira & Luckman, the planners have been trying to determine by some occult research the correct size of the elements in the civic auditorium complex. They are thinking in the range of a theater with 1500 seats; a music hall of 2500 to 3900 seats; a civic auditorium of 6000 to 20,000 seats; an amphitheater of 100,000 seats; and such other elements as a Presidential Hall, a Hall of States, and a tourist information facility. After the decision on size, the planners will then tackle the question of various central city and suburban sites. Locations on Roosevelt Island in the Potomac River, in the Southwest Redevelopment Area, and overlooking the Anacostia River are among those being considered.

In short, the Commission's staff appears totally bemused by the pragmatic aspects of their problem. Their development committee is headed by Barney Balaban, who made a commercial success of Paramount Pictures, probably as much by air conditioning its theater houses (before the antitrust lawyers in the Department of Justice got into the act) as by anything he did to produce first-rate movies. A cultural center that works, as the box office says it ought to work, certainly seems in the making. It is probable that Congress will also equate popular success of this sort with political acceptability. But the Commission itself is able to take a rather longer view of what it proposes. Already it appears to have surmounted an apparently irreconcilable conflict between local interests wanting a cultural facility, chiefly for music, and equally powerful local interests who wanted a boxing arena and 18,000 passenger convention hall. The latter are still in the picture, but in a subordinate role. It also seems to have squelched a real architectural horror proposed by Robert W. Dowling, a real estate tycoon and theater owner, who is a commission member: an "accordion" building with movable walls that could accommodate everything from chamber music to ice shows and national political conventions. Altogether there is room to hope that out of the present effort to gestate something, will come a project of which the nation can be proud, which it will want to build.

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THIRD ANNUAL P/A AWARDS DINNER

MR. & MRS. RUSSELL MRS. GRUEN HOLMES

DETROIT, MICH., Jan. 20—More than 300 architects and their wives gathered here tonight at the Hotel Whittier to witness presentation of Awards and Citations in P/A's third Annual Design Awards program (January 1956 P/A). The meeting was a joint gathering of the Detroit AIA Chapter and P/A guests.

Chapter President Suren Pilafian welcomed the assemblage, and Tom Creighton presented the Award plaques, Pietro Belluschi, Dean of the School of Architecture and Planning at MIT, spoke for the Jury, and Walter Reuther, Chairman of the Building Committee of the Citizens Redevelopment Committee that sponsored the Detroit redevelopment project that won this year's First Design Award, delivered an address. Both talks will be published in April P/A.

MR. & MRS. DESMOND

JYRING KLEIN STEGNER

YOUNG CABOT GEDDES CLAUSS LUNDY

MR. & MRS. AGREE DART ELTING GRUEN CURTIS

News Bulletins

• ARCHITECTURE FOR THE GOOD LIFE will be theme of 88th Annual AIA Convention, to be held in Biltmore Hotel, Los Angeles, May 15-18. Convention will open with keynote address by John Ely Burchard, Dean of School of Humanities and Social Studies at MIT; seminars, relating to theme, will explore community planning, safety, new materials and techniques, and esthetics.

• Talbot F. Hamlin, Professor Emeritus of Columbia University, has been awarded Alice Davis Hitchcock Medallion by Society of Architectural Historians, for his recent book on America's first professional architect, Benjamin Henry Latrobe.

• Grand Award of $5000 in Ferro Corporation's Porcelain-Enamel Design Competition was won by Henry S. Brinkers, research architect at University of Illinois, for his community youth center. Prize winners in elementary-school category were: 1st, Horacio Caminos and Eduardo F. Catalano; 2nd, Stephan M. Goldner, C. Chadburne Shumard, and Hanford Yang; 3rd, Thomas Lam. Community youth center prizes went to: 1st, C. K. Chen and L. C. Chen; 2nd, Cecil D. Elliott and George Matsumoto; 3rd, Donald Goodhue.

• New York Chapter, AIA, presented its 1956 Arnold W. Brunner Scholarship, a $2400 grant, to Caleb Hornbostel, Manhattan Architect, for handbook of basic construction materials, Materials for Architecture, to be published by Reinhold.

• Competition to stimulate original thinking on relationship between residential interiors and exteriors is being sponsored by the Morton Arboretum, Lisle, Ill. Prizes and fees totaling $15,000 are offered for two- and three-bedroom houses, six of which may be built as permanent exhibit of residential landscape planting. Competition (open to architects, draftsmen, and students) closes May 7, 1956; for program, write: Howard T. Fisher, AIA, Architectural Adviser, Morton Arboretum Small House Competition, 332 W. Washington St., Chicago 6, Ill.

• Conference on Urban Design and Role of Planner, Architect, and Landscape Architect in Design and Development of Cities will be sponsored by faculty and alumni of Harvard Graduate School of Design, April 9-10.

• General Bronze Company will fabricate architectural-bronze curtain wall for new 38-story House of Seagram, New York. This metal, to be oxidized, will cover 55% of envelope; remainder will be pink-gray glass.

• Exhibition of work of Ludwig Mies van der Rohe, commemorating 70th birthday, will be held March 27-April 14 in IIT's new Architecture-Planning-Design Building, which he designed.

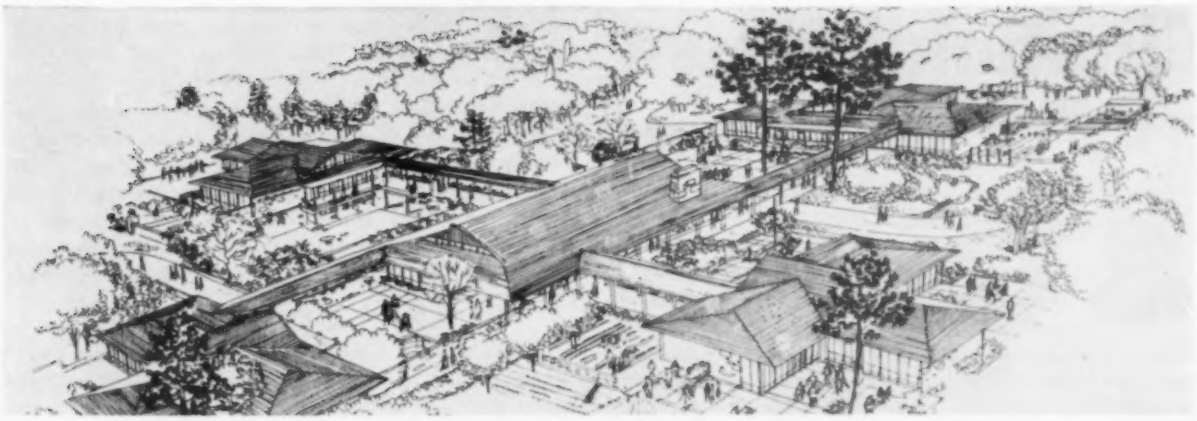
• Although 470,000 new classrooms in next five years—or about 45,000 units above present annual rate—has been set by U. S. Office of Education as "reasonable" goal to overcome existing shortage, replace obsolete facilities, and provide for enrolment increases at elementary, secondary, and college levels; money spent for new public schools in 1955 was only 14% over previous year despite increased construction costs, while spending for private educational facilities dropped 6% from 1954. . . . U. S. Dep'ts. of Commerce and Labor predicted 10% rise in expenditures for public schools in 1956 and 5% boost in private schools; but reports for January '56 show outlays for public facilities increased only 4% above same month in '55 (to $190 millions), while spending for private schools dipped 2% (to $41 millions).

• Paul Schweikher has resigned from Chairmanship of Yale University's Department of Architecture to head Department of Architecture, Carnegie Institute of Technology.

• The Society of the Plastics Industry is sponsoring an international competition to encourage ideas for new uses of plastics in residential design. Total of $3250 in prizes, for best houses and best feature areas utilizing plastics, will be awarded at 7th National Plastics Exposition at New York Coliseum, June 11-15. Competition (closing May 20, 1956) is open to architects, draftsmen, and students. Register with: James T. Lendrum, AIA, Professional Adviser, SPI Plastics House Competition, Mumford House, University of Illinois, Urbana, Ill.

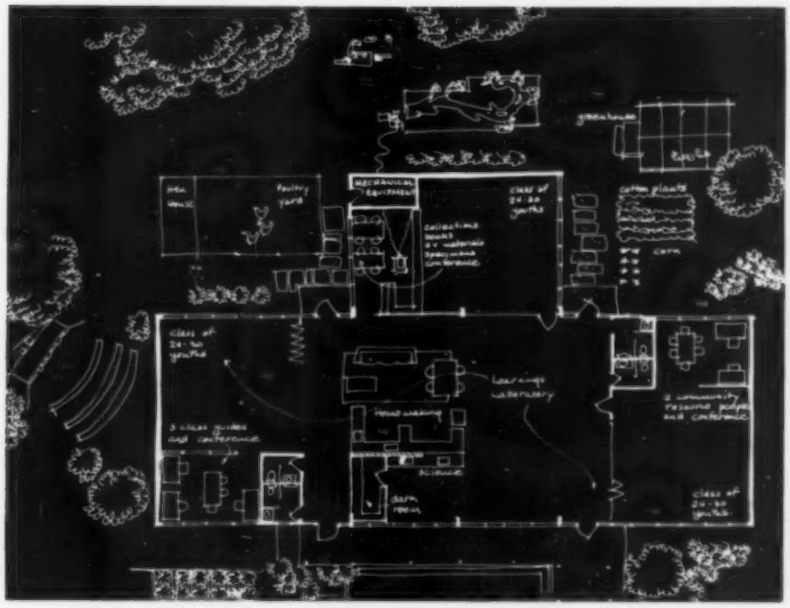
• Charles Downing Lay, 78, landscape architect, died in Stratford, Conn., Feb. 15, after life-long service to his profession—as a founder of Landscape Architecture magazine in 1910, author, Landscape Architect for New York City Department of Parks, Consultant for 1939 New York World's Fair, and as recent founder of Housatonic Valley Planning Association.

• Three new commercial projects, notably the Sheraton-Dallas Hotel, have recently been announced. . . . Union Dime Savings Bank, Manhattan landmark located at northwest corner of Sixth Avenue and 40th Street, is being demolished to make way for 32-story, air-conditioned office building designed by Kahn & Jacobs and Sydney Goldstone (acrosspage, two photos at left). Bank will occupy first three floors; remaining office space will serve New York's main textile center. . . . $40-millions Southland Center in downtown Dallas (acrosspage, center), designed by Welton Becket & Associates, Mark Lemmon, Consulting Architect, will include 28-story Sheraton-Dallas Hotel, 42-story tower for Southland Life Insurance Company, and 2000-car underground garage. Entire second and third floors of project, 175,000 sq. ft., will be taken by Hotel for lobby, restaurant, and largest ballroom in Texas. . . . Development of upper Madison Avenue, Manhattan, will be furthered by new home office for C.I.T. Financial Corporation (acrosspage, far right), located between 59th and 60th Streets. Harrison & Abramovitz are Architects for 8-story, polished-black-granite and stainless-steel structure, which will feature provisions for latest electronic equipment.



TOMORROW'S SCHOOL NEEDS DISCUSSED

by George A. Sanderson



Two of the 28 drawings from John Lyon Reid's office —ranging from an analysis of total community needs to pieces of furniture—merely indicate parts of one possible "Secondary School of the Future." The cluster, an individual school within a high school, shows four "home units" joined to a central commons building. Interior space of each of the units is arranged—or rearranged—to meet the needs of a particular class or age group.

ATLANTIC CITY, N. J., Feb. 20—Crowding this resort city's hotels, Convention Hall, and Boardwalk this week was the annual Convention of the American Association of School Administrators. In addition to the thousands of educators, school officials, and product manufacturers' representatives who attended, there were school architects on hand from every quarter and an exhibit of contemporary school designs sponsored jointly by the AASA and AIA, occupying what seemed to me like an acre of exhibit space.

One of the most provocative exhibits of particular interest to architects was a 33-ft-long display of "The Secondary School of the Future," a venture sponsored by *The School Executive* magazine (Dr. Walter D. Cocking, Editor), which will report on it fully in its March issue. The result of five years of research and study by leading educators and architects, this final synthesis was developed by Archibald B. Shaw, Superintendent of Schools in Scarsdale, New York, and John Lyon Reid of the San Francisco architectural firm, John Lyon Reid & Partners.

The exhibit, which charted the course of a typical boy through his educational years from 14 to 17, emphasized the need for a so-called Partnership Program in which his community experiences, on-campus experiences, and the community resources are integrated in such a way that he increasingly feels himself to be part of his community.

Financial News

by William Hurd Hillyer

Consumer credit will have a marked effect upon architectural practice during the remainder of the year. However, in seeking causal connections its role should not be confused with that of residential building credit. Although the two are often totaled together, because they involve individual obligations and are usually liquidated in monthly installments, they are different in origin, opposite in purpose. This is evident from their respective designations: one consumes, the other shelters. Rapid depreciation puts the automobile into expensive brackets; by contrast, the home is an investment, with a value which may be maintained or even enhanced by timely upkeep and repairs.

Already, with spring upon us, consumers are finding it harder to meet their obligations than a short while back. A Boston banker is quoted as saying, "Most of the debt is owed by the middle-income group . . . earning $3000 to $7500 a year. They're sticking their necks too far out in relation to income." As these are the people whose housing needs engage the architect's attention most pressingly, their plight may soon reach a point where design may have to be modified or shelter curtailed. Complains a member of the Washington panel, National Association of Home Builders, "You have to sell every house three or four times, because when your customer goes to the permanent lender and tells how much he owes on car and furniture, he gets turned down."

Consumer credit and mortgage credit are presently dissimilar as to volume trend. Plottings of their respective curves reveal a percentage spread: the ($5 billions) 20% increase in automobile, personal, and other consumer paper during 1955 compares with a partly estimated 15% increase in nonfarm mortgages of all types. Huge as was the homebuilding total for '55—some 1.3 million nonfarm dwelling starts—it was still below the 1.4 million 1950 record.

The current "slippage" is seriously noted by The National City Bank of New York. Coupled with the downward revision of automotive production schedules, it is thought to signify a narrowing and slowing of the so-called "business advance" and possibly the reaching of a long expected "crest."

By way of reassurance—even if this authority is right and a leveling or slackening period has set in, the impact will be swifter and greater upon the fast-maturing automobile and other noninvestment paper, than upon the longer-term obligations secured by improved real estate. The arithmetic is simple. A $2400 car indebtedness means a $108 per month payment for two years, while a $12,000 VA 25-year home loan amortizes at only $66.72 monthly against a presumably sound real-estate investment. That is to say, the home loan requires slightly over half the monthly payment for a debt five times as great. (This fact, by the way, should prove heartening to hesitant clients.)

Meanwhile, bankers close to mortgage demand predict an active second quarter. Dollar volume of new construction will be higher than last year, President Welch tells his Savings and Mortgage Division, American Bankers Association. Notwithstanding, mid-February conditions are such that major banking opinion regards the rise in various parts of the economy as no longer uniform. "Neither, however, is the leveling out or decline," one observer avers. Some sectors, "like housing, may be nearing the end of the adjustment period. Others, like automobiles, are now in the adjustment process."

• Swollen suburbia is presenting new problems countrywide, to architects as well as businessmen. Its once liberal open spaces, that only yesterday bred easy-sweeping horizontal designs for residence and retail construction, are now shrinking and will soon exert vertical pressure to accommodate teeming areas. Industries move in, trucks block traffic, stores are overcrowded, a Wall Street Journal survey reveals.

• Automation is another morrow-verging development which will soon modify architectural design in the nonresidential field. The effect of internal banking functions upon bank building layout has already been noted on this page (December 1955 P/A). These functions are now objectified with automation aid. Central accounting systems are being installed by bankers to link main offices with branches and correspondents. One large Georgia institution centrally processes installment loans for 39 correspondent banks.

• General economic factors are at the moment mixed, but with plus signs still predominant:
Industrial volume output-total declined slightly the first week in February, but is still ahead of this time last year;
Automobile output was 10% below the corresponding week of '55 (ending Feb. 3);
Increased orders from construction industries helped to expand the unfilled order backlog in structural and allied steels;
Biggest rises were in heavy engineering contracts, followed by industrial, commercial, and private mass housing;
Bank clearings are running ahead of '55 in 25 leading cities. On the other hand,
Business failures multiply—11% more numerous than last year in February's first week;
Consumer markets are losing momentum because of auto and housing slowdowns;
Federal Reserve restraints are still causing tightness of money and credit.

• Investment in new plants and buildings, up 20% for '55, is expected by bankers to advance measurably during the current year. State and local government outlay, notably for schools, likewise exhibits an upward trend. These various expenditures will be supported by a steady increase of personal income ($3 billion up from November's annual average) together with individual savings and pile-up of corporate profits. Ratios between sales, inventories, and bank loans are considered "healthy" in competent quarters. As New York's largest bank sees it, "with this firm underpinning" the adjustments that seem to lie ahead should be handled without undue strain.

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hung roofs

by Fred N. Severud and Raniero G. Corbelletti

Recently, sufficient interest has been aroused in hung roofs to make it timely to present some of the basic fundamentals of this type of structural design. Our presentation will be kept simple and direct, so that the basic principles are not confused by technicalities. Accordingly, no construction details will be shown. The main purpose of this discussion is to stimulate interest in this new field and to point out basic conditions under which hung roofs can be economical, practical, and graceful. The subject is so exhaustive that should all the many variants be considered, the text would become cumbersome and confusing.

Any imaginative designer can readily recognize the various possibilities for combinations of some of the elements that will be discussed. It is hoped, however, that hung structures will be approached with proper caution. It would be very unfortunate indeed if serious mistakes, made at the beginning of what seems to be a significant development in this field, were to discredit structures of this kind in the eyes of the public. This could easily happen, for example, if the subject of aerodynamic stability were not carefully and expertly analyzed. Many of the types shown would have the tendency to flutter if not sufficiently stabilized. Let us remember, then, that from the outset "fluttering" tendencies must be nipped in the bud. Although it will be impossible to deal fully with this all-important phase here, various means of stabilization will be touched upon. With this sign of caution along the road, let us be on our way.

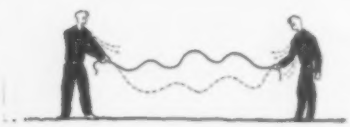
Severud is a partner in Severud-Elstad-Krueger, Consulting Engineers, New York, N. Y., and Corbelletti is a member of Giurgola, Corbelletti, Merz: Design Associates, also New York.

hung roofs

A man is shown sitting under a primitive hung roof (*preceding page*) which may not be as primitive as it looks, since it has some important elements in it that are worth considering. Although the hung roof may attract the eye, we should also look at the supports. There we see two husky trees that the man did nothing to bring about. The trees were there, so he took advantage of their great power in resisting pull. If it hadn't been for those sturdy trees, his elegant hung roof made of saplings could not stay up in the air. Rather, it would have to be supported by members that can resist bending. As an indication (not a measure) of the efficiency of hung roofs (where they are appropriate), working stresses in steel cables are as high as 80,000 psi, whereas those of steel in bending are only 40,000 psi. A roof supported by two logs in bending is illustrated (*above*). (We have shown two men, because it would take both to lift those heavy roof members.)

From the very beginning, then, it is important to have in mind two basic elements: (1) the hung structure itself; (2) provision for vertical supports and resistance to pull. The two are so intimately integrated that it is hard to think of one without the other. In any structure where a hung roof is considered, the abutment situation must be carefully explored. Just as the sturdy trees were already there, sometimes abutments are "found"—as in two buildings, or two wings of one building, for example, which often offer resistance to pull in a similar manner to the husky trees. Just as the trees have an unused capacity to resist pull, often the building's elements are in the same position. But more about this later. First, let us get into some of the elements of the hung structure.

As shown (*below*), a single rope handled by two men is extremely flexible.



When heavy loads are attached to it, it becomes more stable;

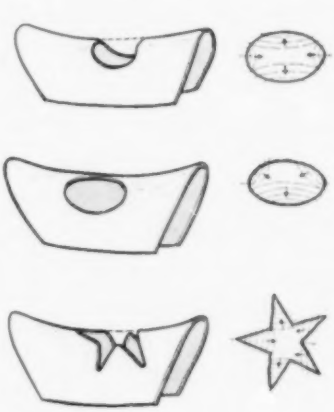
even more so when these loads are anchored to the ground.

Here again it is also well to be conscious of the supports. Note that when the loads are attached to the rope, the two men on the ends must brace themselves against the pull. Instinctively they slant their bodies in such a manner that the eccentricity between the body's center of gravity and the supporting feet will help to create a stable condition.

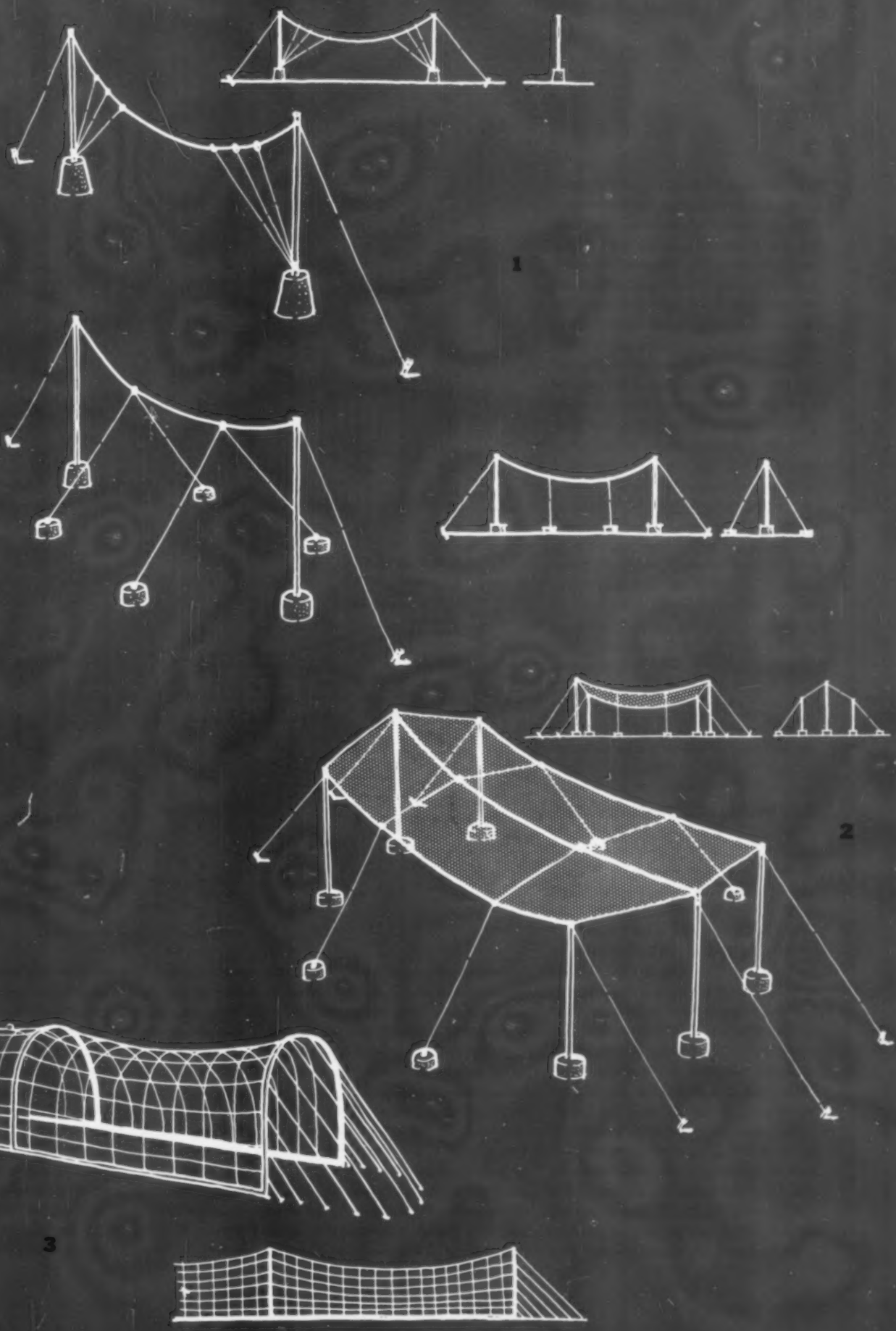
In order to concentrate better on the hung element, a different kind of support, one that is well known, is shown (**1** *acrosspage*). The pull is not resisted by the support, but instead is resisted at a fixed point at a certain distance from the supports.

In these sketches we want to concentrate on creating stability in a space structure. Since hung structures are mostly used to define open spaces, we cannot stabilize the rope by vertical wires, as shown previously. This would defeat the purpose of an unobstructed space. The necessary stability can be gained by guy wires drawn to the supports or, as shown, by spreading the fixed points sufficiently apart so that the required space remains unobstructed.

How much usable space can be obtained and how stabilization can be achieved by running stabilizing wires over several cables is shown (**2**). The bottom sketches (**3**) show how we need not necessarily keep to straight lines; but that a curvature can be achieved which will in itself create a stable condition. This leads us into the saddle shape (*below*). These sketches show



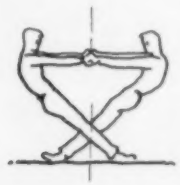
that any shape, be it symmetrical or asymmetrical, cut out of a saddle, will be stable provided the ends and the perimeters are fully anchored.


1
2
3

hung roofs

With some of these basic principles in mind, let us analyze the well-known Raleigh Arena, executed by Architect William Deitrick, based on the brilliant concept of the late Matthew Nowicki. Since so much has been published about this Arena, let's assume that we need not go into the details. The sketch (**4**) shows clearly the basic structure.

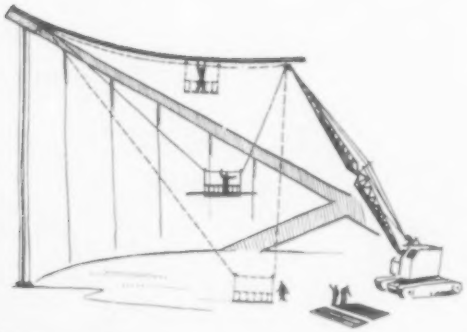
The action of the two arches may be considered similar to that of two men in a tug-of-war. Their weight, leaning back, is in dynamic stability, with pull in their



arms. Conventional suspension systems, on the other hand, are static and require some sort of tieback. This is shown by the two men standing up straight. These men require two extra men, the "deadmen," to provide the stability achieved by the two men in the upper sketch.

This may be an oversimplification of the structural principle, but the concept is accurate. The two parabolic arches (**4**) supported on the fireproofed structural-steel columns of the pavilion, are frozen into this tug-of-war position, while the steel cables (the arms of their human counterparts) span and support the roof.

The shape of the roof—a saddle—gives the opportunity to resist both downward and upward forces. The catenary system, spanning between the arches, resists downward forces, and the arched cables passing over the saddle resist uplift. It was soon realized from



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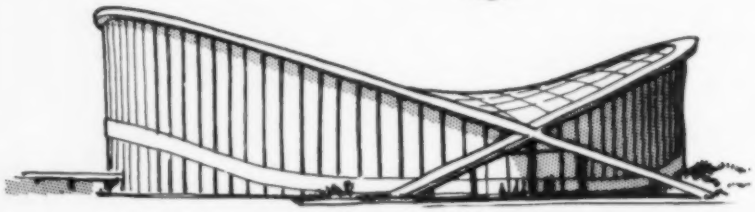

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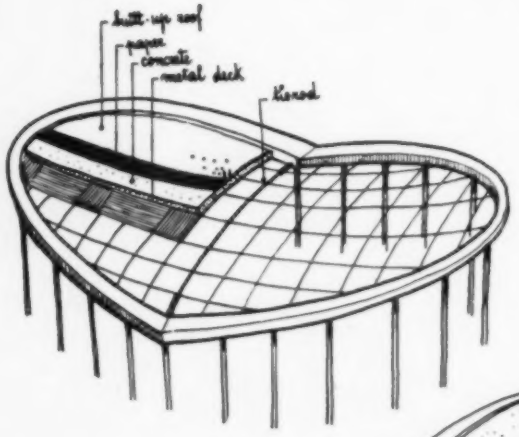

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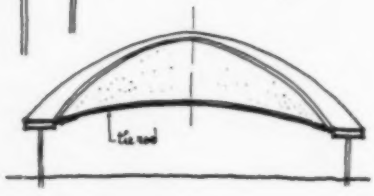
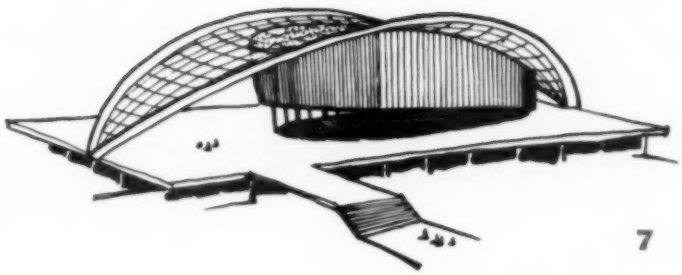


engineering principles, however, that this system of crossing cables could not be made immune from fluttering, by prestressing alone. This fact was also demonstrated by wind tests on a scale model.

Furthermore, the cross cables away from the intersections lost their convex curvature. It became necessary, therefore, to provide guide cables at the ends of both systems of cables. With this provision, prestressing could be omitted.

Originally a fabric roof was considered, but the material available at the time of bidding was more expensive than the roofing adopted—a steel decking covered with rigid insulation and roofing. With this relatively stiff roof deck, the tendency to flutter is reduced, but not sufficiently to risk elimination of the guy wires, which are designed to take the full unbalanced load without the benefit of the roof deck. Not only safety is involved, but also the integrity of the roofing membrane. The guy wires are connected to the main cables with Crosby clips, which are a kind of U-bolt. A pressure of 5000 lb was applied to the top of the clip while the bolts were tightened. In some places, several clips



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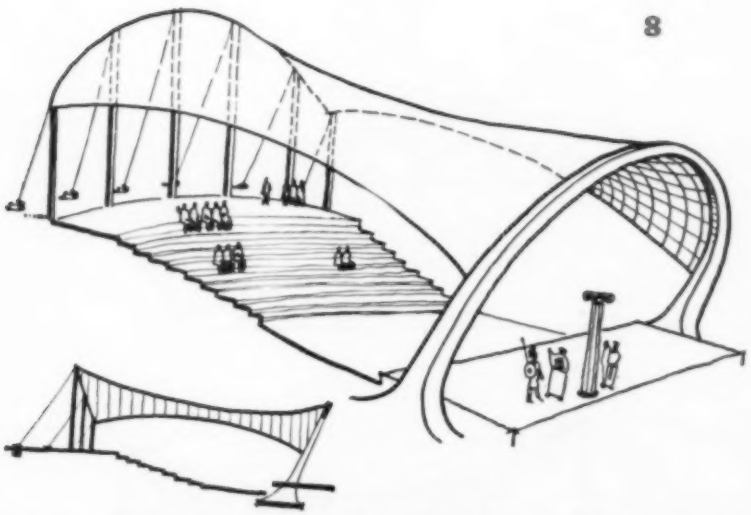

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were used together. To ease impact forces and to make the guy wires effective under varying temperature conditions, these wires are equipped with adjustable springs with load indicators. Much more would be said about fluttering, if this article were to be more of a technical nature. It is thought best, however, to call attention to this very important factor and let it go at that. As previously stated, each problem should be solved by an engineer highly skilled in space structures of this kind.

Before leaving the Arena, a very simple solution to the erection of the roof deck will be cited. Walking about on planks laid on cables might have made the workers a bit jittery. Therefore, a working platform, with proper railings, was hoisted and lowered by a crane attached to one of the arches (**5**). By swinging a crane boom, a large area could be served with each anchorage point of the cable. The platform also serves as a materials hoist for the roof-deck panels.

The basic structure of the cafeteria at the Corning Glass Works designed by Harrison & Abramovitz is illustrated (**6**). Although the fundamental shape bears a resemblance to the Raleigh Arena, there are some important differences. Here the arches, after meeting head-on, stop dead, rather than continuing to the ground. The tendency of the arches to spread is resisted by a tie rod in the roof construction, following the curvature of the roof. This creates an interesting structural situation which must be carefully examined. When snow and wind load hit the roof, the roof structure will deflect. This deflection will cause the tie rod to lengthen, so that there will be a certain spreading of the arches. However, if it is properly designed and built, the construction is perfectly stable and practical.

Another feature different from the Arena is that the roof is stabilized by dead weight, obviating the need for guy wires. As will be noticed, there is a metal deck clipped to the cables and on top of this deck two inches of poured gypsum concrete. With the insulation and roofing added to it, there is sufficient dead weight so that roof flutter cannot occur.

Let us now examine the Hall of Congresses in Berlin (**7**) designed by Hugh Stubbins Associates, Architects. Here two sweeping arches span 280 ft without any vertical supports, the cables in the roof preventing their rotation. Under absolutely uniform conditions, stability could be obtained by such a system alone; however, allowance must be made for unequal snow load and wind forces, so that this structure is not stable without an element to provide lateral support. This is found in the building itself. By making the "piazza" roof contiguous with the auditorium roof, advantage can be taken of the great stability of the auditorium against any unequal lateral forces. A rather heavy concrete roof, designed to satisfy sound-transmission requirements, was very welcome structurally. The auditorium roof, being poured solidly around the cables, gave an excellent means of connecting the two elements.

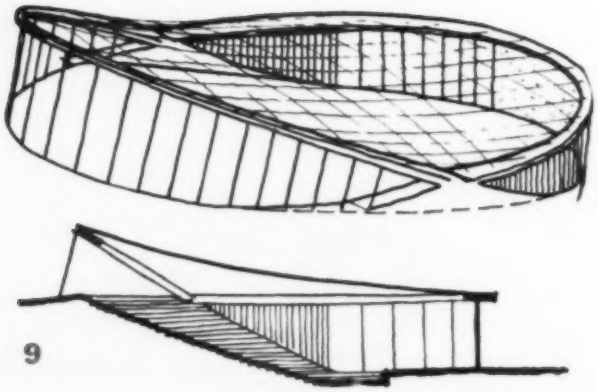
In most of the systems shown so far the anchorages have been of a symmetrical nature, so that the anchorage at one end has been identical to the anchorage of the other. It is important to note, however, that with a hung roof there are great

opportunities of varying the anchorages at each end. As an example, the basic principles of construction of a proposed amphitheater by Harrison & Abramovitz, Architects, bring some of these elements into focus (**8**). Here we see a familiar sloping concrete arch at one end. However, this arch does not lean back nearly as much as others that are supported vertically. It also has a flare at the base to resist moments. Without vertical support, the arch must be able to resist unequal forces, and that means it must resist not only the cable pull but also the bending caused by such unequal forces. Obviously, the structure must be stable, both with and without snowloads. The entrance anchorage is by rock anchors, recently developed, that provide the necessary security. (Fortunately, hard rock was available.) It should be remembered, therefore, that when rock is present it may well be that an anchorage of this type is the most economical. However, the main reason for including this sketch is to highlight the opportunity of considering a variety of anchorages, whichever the functions of the building and site conditions will permit.

Another interesting feature in connection with this project is that resistance to fluttering is accomplished by end cables that are sufficiently prestressed. As will be noted, these cables have a curvature in both the vertical and horizontal planes. In this position they are highly efficient and will create anchorage in a very efficient and economical manner.

At this point I should like to introduce Frei Otto, a German architect who visited our office while the Raleigh Arena was under construction. He liked what he saw and from that time on has done a great amount of work in this field. In fact, he has written a book about hung roofs which we can recommend for its versatility of presentation and good factual information.[1] We have been in constant communication with Otto since his visit, and it is with his permission that we reproduce some of the sketches from his book, and

[1]Dr.-Ing. Frei Otto, Das Hängende Dach (Berlin: Ullstein A. G., 1954). *The Hung Roof* (American Distributor: Wittenborn & Co., 38 E. 57th St., New York 22, N. Y.).



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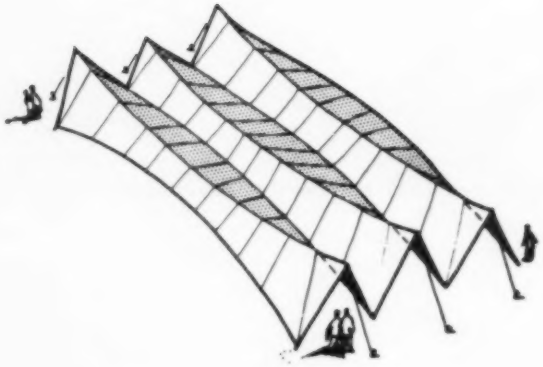

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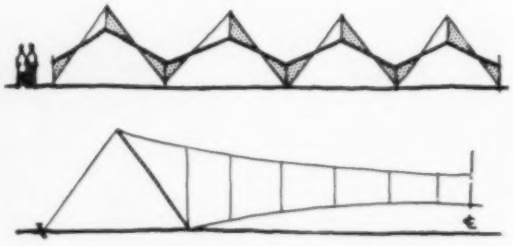

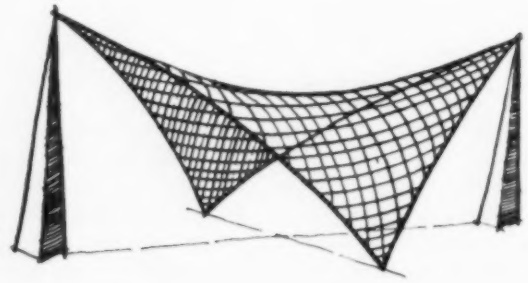

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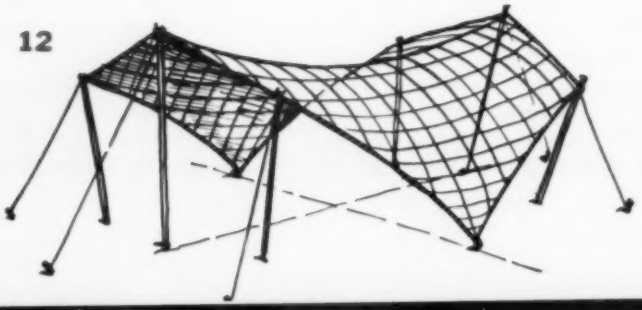

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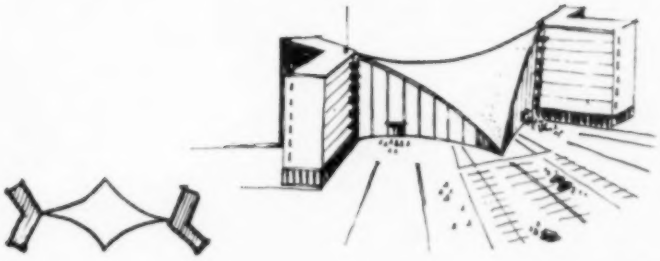

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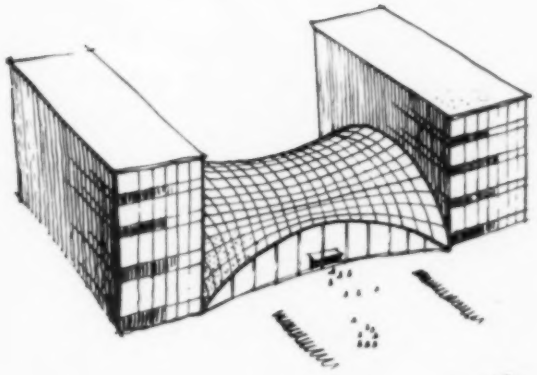

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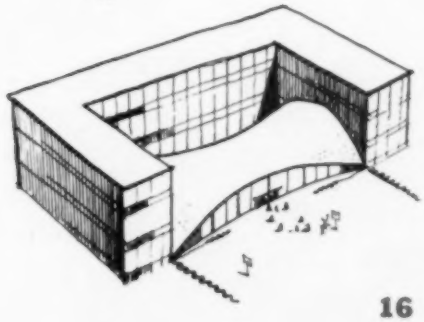

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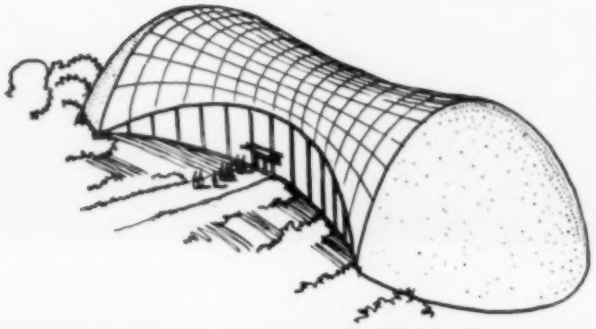

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say a few words about them. The principle of creating different anchorage conditions is again illustrated (**9**). In one case the arch resisting the pull has a very small rise (horizontally), and in the other it is much larger. This gives opportunity for many very interesting shapes.

A system of creating a zig-zag roof in a very simple and direct manner is shown (**10**). Note here, again, the system is stabilized by edge cables sprung between fixed points. Obviously there is no reason why this system cannot be used to roof a building, rather than just covering the ground as shown.

A few other graceful forms have been selected from Otto's book. One sketch (**11**) shows how high and low anchorages can be gracefully combined. Another (**12**) is based on the same principle, but using six high points and two low anchor points. The sketch (**13**) may look somewhat fantastic, but we are sure it is very realistic, given the proper rock contour. Here a whole valley is covered over, anchoring the hanging structure to the rock. On this note, we will now say goodbye to Frei Otto, though we are certain to hear from him again in this field.

The sketch (**14**) is a modification of sketch (**11**). It shows how the high supports can be formed by buildings instead of separately created abutments. These buildings have unused lateral stability and therefore the abutments are "free." This is the same principle that introduced this discussion (*illustrated on first page*). Both (**15**) and (**16**) show other ways of taking advantage of adjacent structures. The bottom sketch (**17**) should be self-explanatory. The concrete shells furnish stability for both vertical and lateral forces.

At (**18**) is shown a simple triangular form, where cables are anchored to sloping girders in the roof surface. These sloping girders double as sunshades. Because such an anchorage creates heavy bending, it would be more practical under many circumstances to create the form shown at (**19**), which is modified to curve the sides of the triangle into an arch shape, thereby resisting the pull in a more efficient manner.

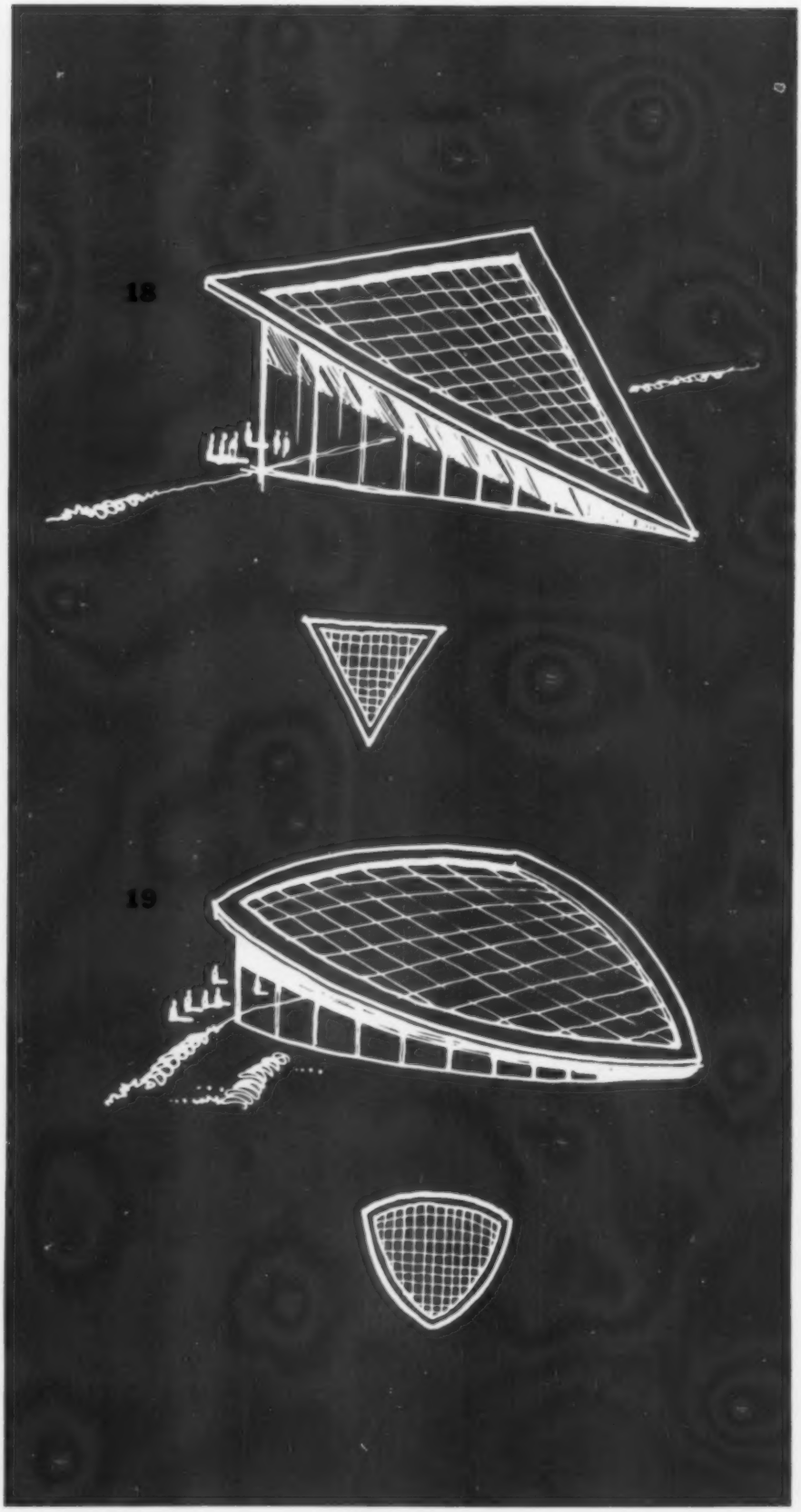
Let us consider how hung roofs can be formed by a combination of sloping-end arches and intermediate arches in a vertical plane (**20**). The end anchorages are sloping concrete arches. These normally will have vertical supports but they aren't shown since they are not essential for stability if unequal forces can be taken in other ways. The sketch clearly shows how large areas can be covered in a very economical fashion. We have worked on schemes to cover racetracks and similar areas, and it seems that a system of this kind is by far the most economical when dimensions of that magnitude are contemplated.

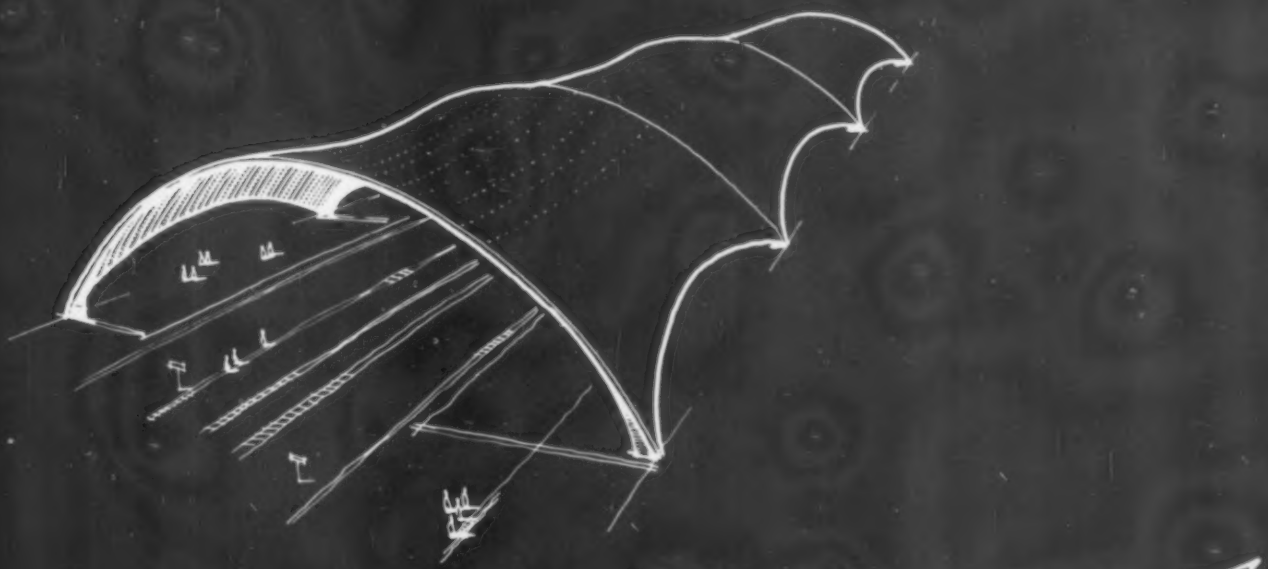
The last sketch (**21**) shows a form that has limited usefulness in itself but does show the versatility of a hung roof. Forms that otherwise would be prohibitively expensive to create in the United States can very readily be formed as the cables are fastened in their proper locations. It is a bit of a chore, however, to figure accurately where the cables should be fastened and what the length of each cable will be. However, electronic computing machines that are now available take the curse off this chore so that this drawback is not of too great a significance.

conclusion

Hung roofs are here to stay. (That has been demonstrated by the fact that the Raleigh Arena weathered two major hurricanes with flying colors.) Many opportunities have been missed and are being overlooked currently to employ this graceful construction medium. If we are to build structures of this kind in the future, from their beginning they must be visualized on the basis of this structural conception.

However, this demands mental training for all of us. May we suggest that this training start by keeping an eye open for opportunities, past, present, and future? By analyzing opportunities missed, projects on the boards now, and future possibilities, an atmosphere can be created wherein hung roofs become an accepted part of structural and architectural thinking.





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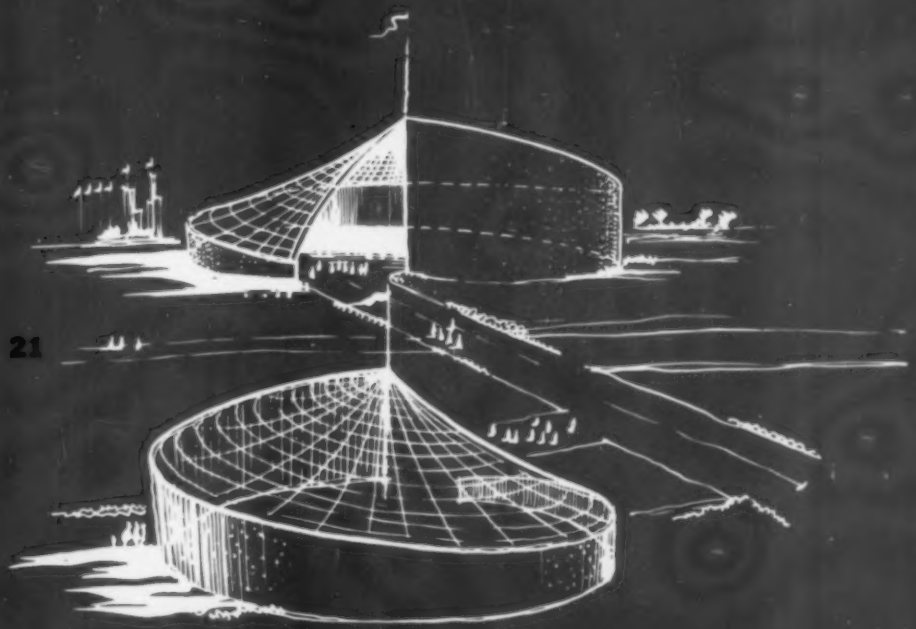

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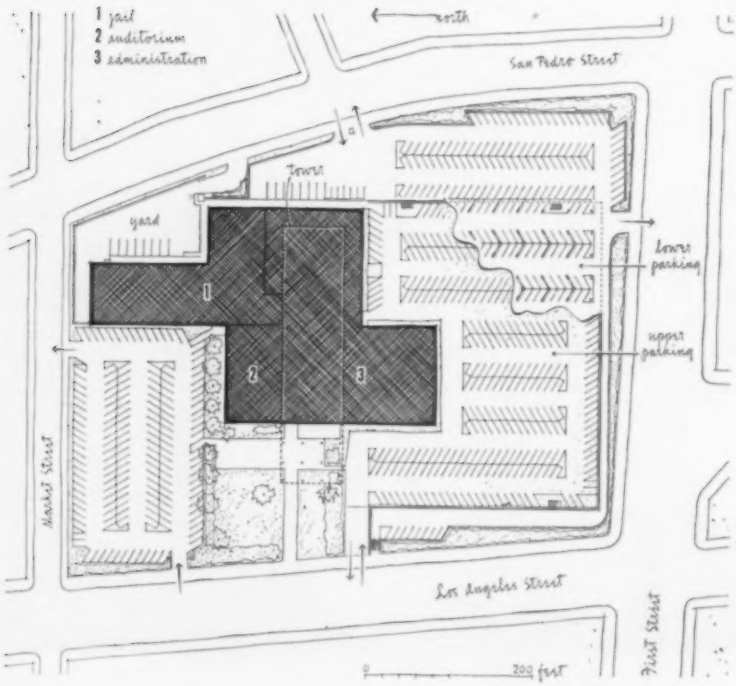
police headquarters

location	Los Angeles, California
associated architects	Welton Becket & Associates and J. E. Stanton
director of design	Maynard Woodard
project architect	Francis Runcy



The Police Administration Building of the City of Los Angeles occupies an entire downtown block—a prominent unit in the Civic Center (tall building in photo acrosspage is City Hall). *Use of site slope provides two-level parking for 850 police cars. The public has a separate parking area* (above). Photos: Julius Shulman

police headquarters

Few police buildings anywhere are known for their architectural merit; even less for their use of the related arts, or for landscaping of their sites. In all these respects, the new Los Angeles building is an exception. In addition—and most important—this structure represents a brand-new building design category; one that will be seen increasingly in the years ahead. For under this one roof (except for a very few patrol divisions) are all of the police facilities for the entire city.

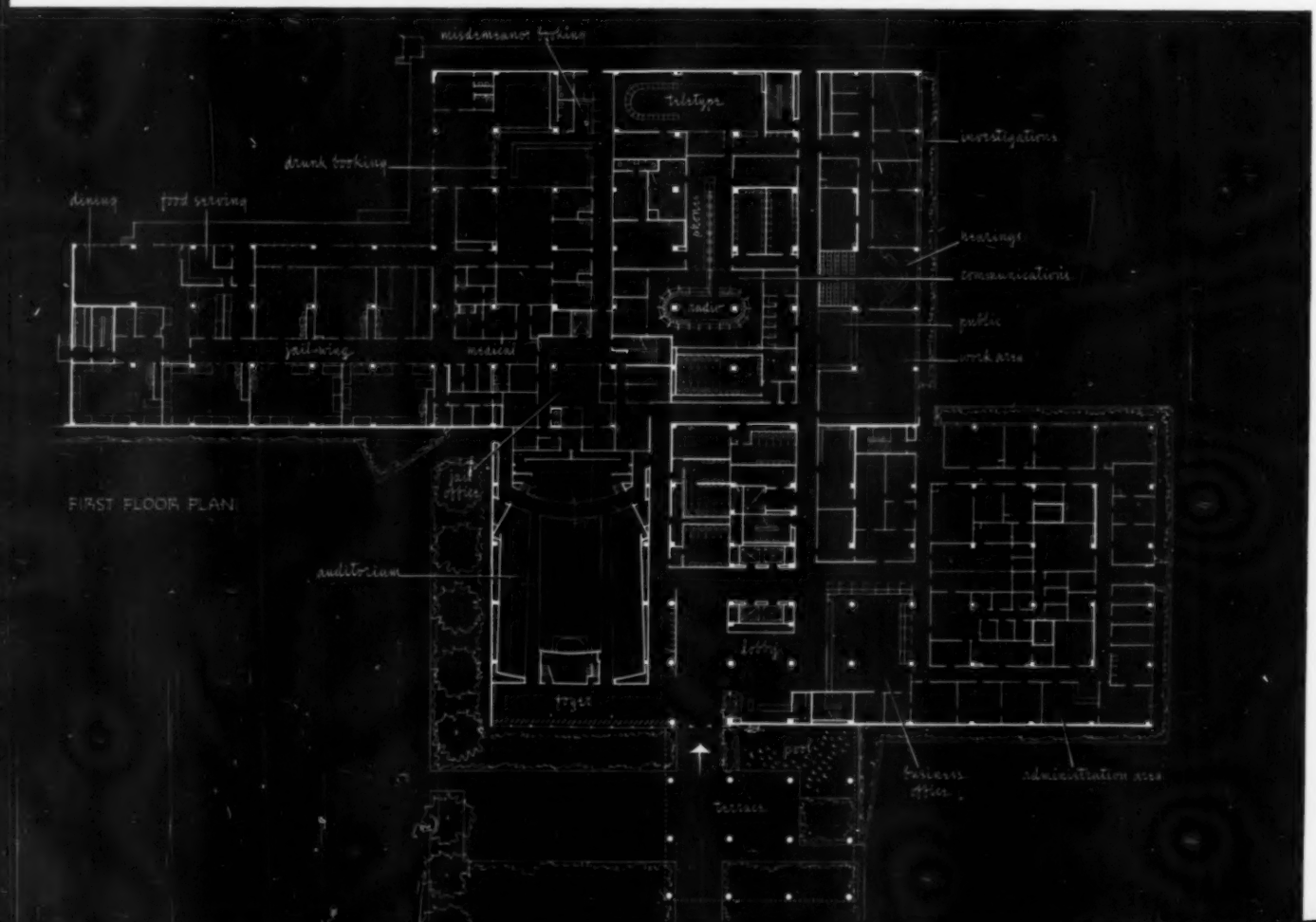
What made such a single building feasible to serve a municipal police department? The answer lies chiefly in the extensive use of the most up-to-date communications systems; electronic devices; and elements of automatic control—new tools that modern technology has provided. Incidentally, these subjects form the base around which the May issue of P/A will be built, and several of the systems used in this building will be discussed in detail in that issue.

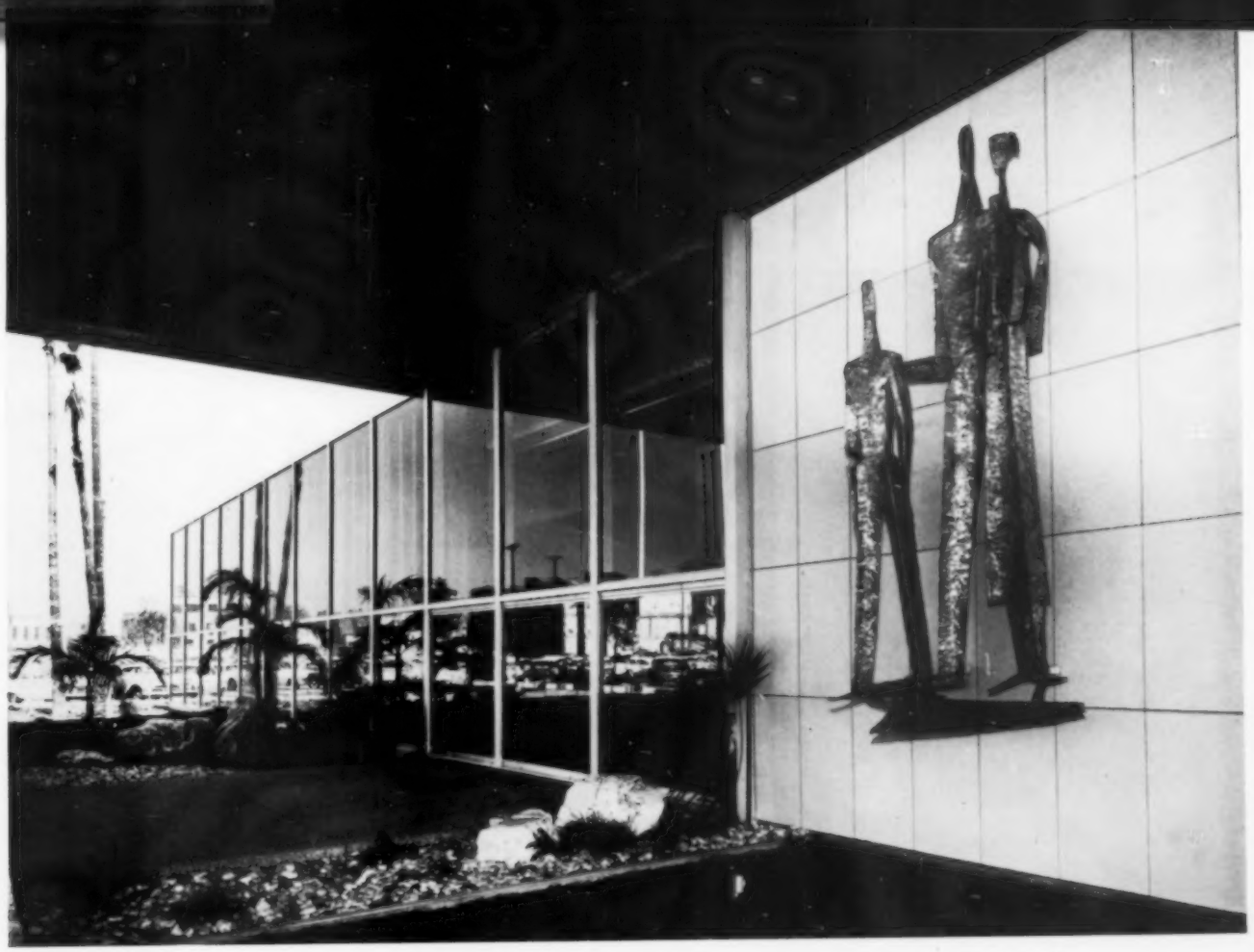
On the ground floor (half basement), which opens directly to the ground-level parking, are facilities used regularly by uniformed officers—locker rooms, assembly rooms, field supplies, etc. In addition to the information center and business offices, the first floor contains the essential communications center (complaints to headquarters; headquarters to street phones and patrol cars, etc.), the Traffic Division, offices of the Police Commission, an auditorium, and the jail. The second floor provides for the felon prison, and the record and identification bureaus. The detective bureau occupies the third floor, and the five upper floors house bureaus and offices.

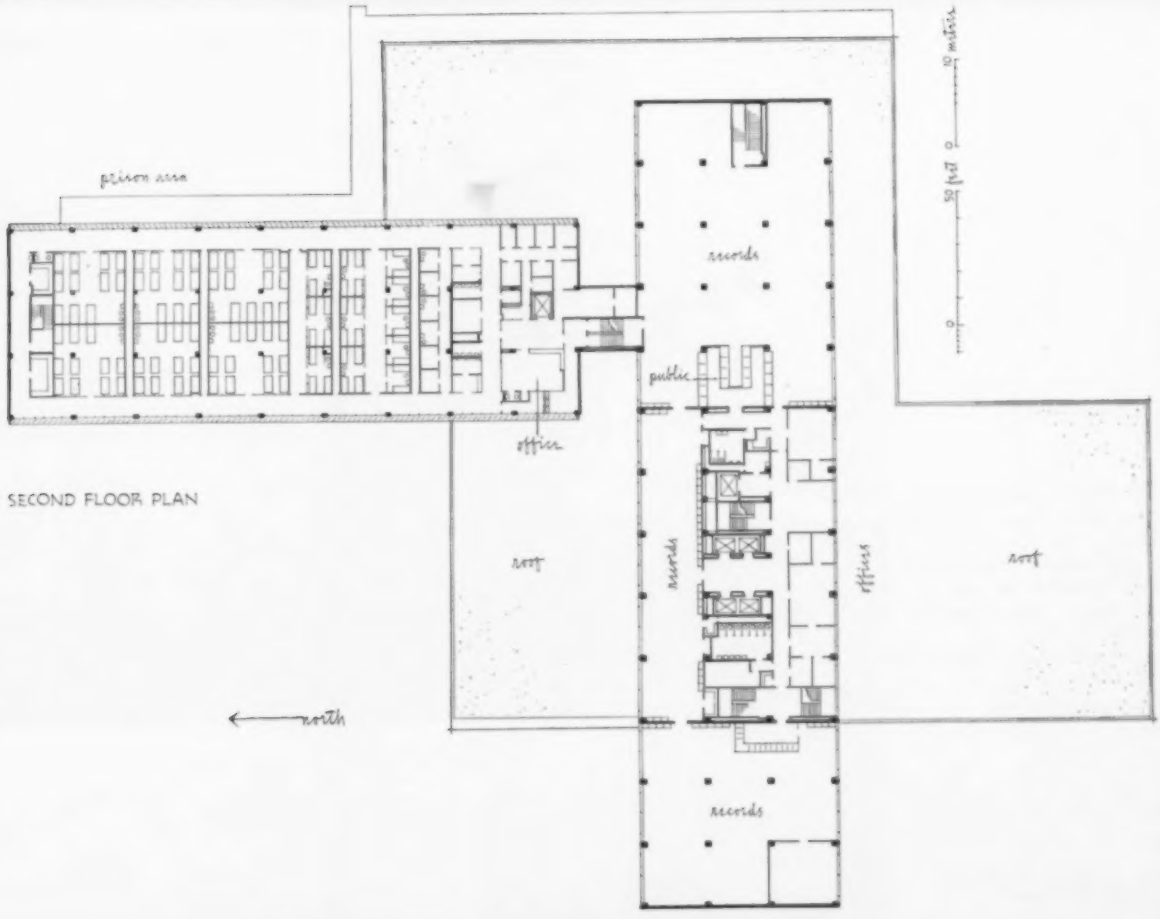
The reinforced-concrete structure has rigid aluminum sash and spandrels of mosaic tile. Ceramic tile surfaces windowless wall areas. Windows of the east and west walls of the jail wing are light-protected by vertical aluminum louvers; and continuous, perforated, ribbed sheet steel panels are used in the jail (instead of wire mesh) as restraining barriers. Except for the jail, the building is fully air conditioned. Artificial lighting consists of both fluorescent and incandescent fixtures.

Bernard Rosenthal's sculpture, The American Family, mounted on the wall beside the main public entrance (*across-page*) has caused much argument pro and con—and from coast to coast. At last report, it was holding its own.

Working with the Architects were Murray Erick and Paul E. Jeffers, Associated Structural Engineers; Ralph E. Phillips, Inc., Mechanical-Electrical Engineers; and Ford J. Twaits Co. and Morrison-Knudsen, Associated General Contractors.







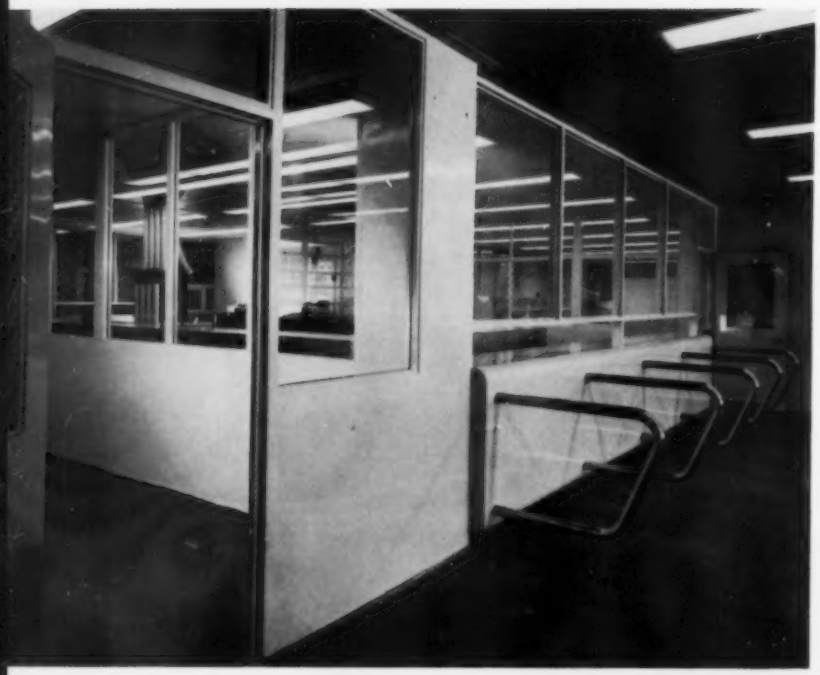
SECOND FLOOR PLAN

The 400-seat police lineup auditorium (top) *opens from a lobby* (right) *immediately to the left of the main entrance to the building. The audience sees suspects through a big show-up screen, but the suspects cannot see the audience. Special controls make it possible to reproduce the exact light conditions under which victims and witnesses saw the crimes committed.*

A feature of the richly finished main lobby (above) *is a 36-ft-long, 6-ft-high, cantilevered glass-mosaic mural, designed and executed by Joe Young. The mural, depicting landmarks in Los Angeles history, is anchored to the structural columns by steel I beams.*

At the main information desk (right), *uniformed officers are on duty at all hours.*

Set slightly apart is a series of report booths (bottom) *where either civilians or the police may dictate to stenographers seated at the other side of the desks.*

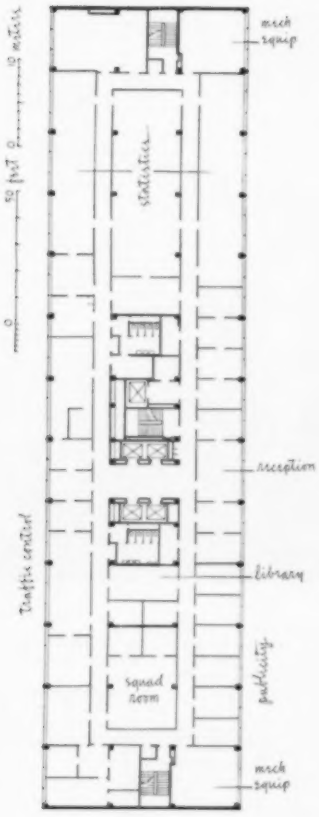


Offenders brought to the first-floor jail are booked at a counter with sturdy handrails (left). *In the room beyond is the Sergeants' desk.*

Ceiling of the corridor of the second-floor felon prison (below) *is finished with perforated-metal acoustical panels. The windows are equipped with exterior vertical aluminum louvers.*

Typical upper-floor plans consist of a central core of specialized rooms, surrounded by a corridor and perimeter offices.

On the seventh floor (plan below) *is the Traffic Services Division* (right), *which correlates data to help improve police traffic enforcement. The big pin maps of the 453-square-mile area served by the department show the locations, times, and types of vehicular accidents.*



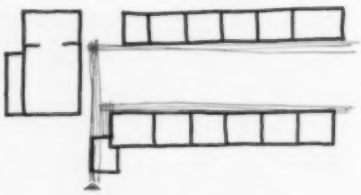
SEVENTH FLOOR
(Typical Tower Floor)

A fully equipped chemistry laboratory located on the north wall of the fourth floor (center) *serves the Scientific and Investigating Division.*

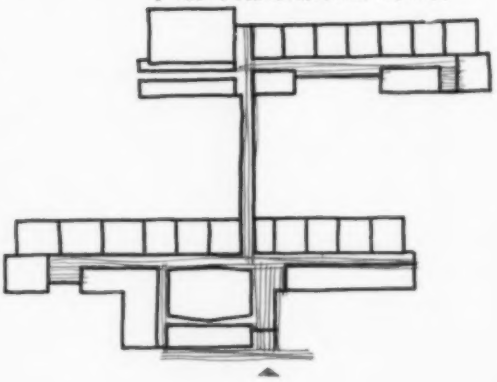
In one of the three assembly rooms on the ground floor (right) *officers are briefed by the officer in charge before departing on beat.*

Photo: Gottscho-Schleisner

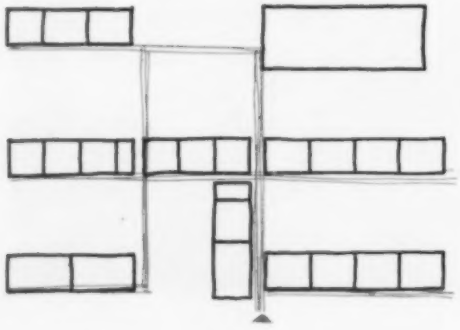
2 Marin County, California
CORLETT & SPACKMAN, ARCHITECTS



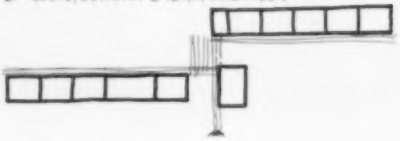
4 Weston, Massachusetts
HUGH STUBBINS ASSOCIATES, ARCHITECTS



1 New Orleans, Louisiana
SOL ROSENTHAL, ARCHITECT



3 San Benito, Texas
COCKE, BOWMAN & YORK, ARCHITECTS



notes

on elementary schools

by Ilse Meissner Reese

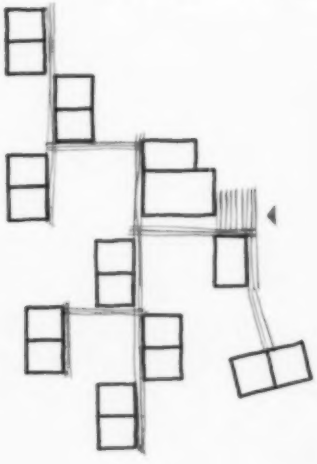
The architects' preoccupation in recent years with the search for optimum lighting, heating, ventilating, and structural solutions has necessarily brought about a certain standardization of school plans. Thus in three out of four recently completed schools (*shown on the following pages*) the finger-plan with single-loaded corridors predominates (**1**, **2**, *and* **3** *below*). All of them are competent solutions typical of most of today's elementary schools. All of the classrooms have bilateral, if not trilateral day lighting. All offer provision for easy future expansion by extending the fingers or by branching out into additional wings. All lend themselves to uncomplicated construction on a modular basis, and are economical to build.

Juxtaposing these solutions with three in the project stage (**6**, **7**, *and* **8** *below*) —all award winners in P/A's recent awards program (*see January 1956 P/A*) —a definite trend toward greater plan variety and concern with architectural forms and spaces is revealed. What has been gained is a reawakening to the fact that architecture is more than the mere solution of technical problems. There is no stereotyped solution among the plans for these future schools which vary from a compact self-contained rectangle (**8** *below*) to an open cluster (**7** *below*) and finally to one (**6** *below*) which, seen in all three dimensions, has delightful and surprising elements reminiscent of an Italian hill town.

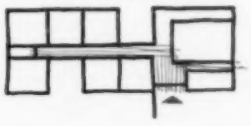
The school (**5** *below*) presently under construction, (*described on page 122*) and also an example of the new design direction, disperses clusters of two classrooms each, over a hilly site, to achieve a playful and village-like complex.

A certain balance between the two extremes—the orderly and functional finger-plan and the recent less inhibited and more dramatic designs—will undoubtedly be struck in the coming years. The school shown here (*left and* **4** *below*) seems to point to this happy middle road, for it offers most of the advantages of the finger-plan without sacrificing pleasurable visual relief. The adept handling of levels, variation in lighting, widening, and narrowing of corridors, and the sensitive proportioning of spaces make it an outstanding example well worth studying, and a herald of good things to come.

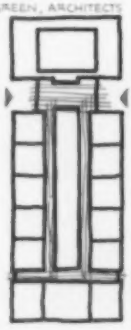
5 Woldwick, New Jersey
KETCHUM, GINA & SHARP, ARCHITECTS



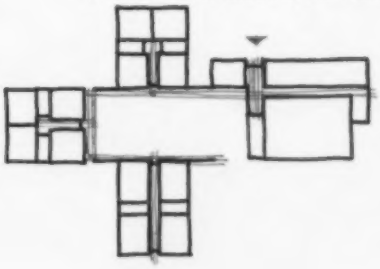
6 Long Island, New York
VINCENT G. KLING, ARCHITECT



8 Albert Lea, Minnesota
BERNARD J. HEIN and HAMMEL & GREEN, ARCHITECTS

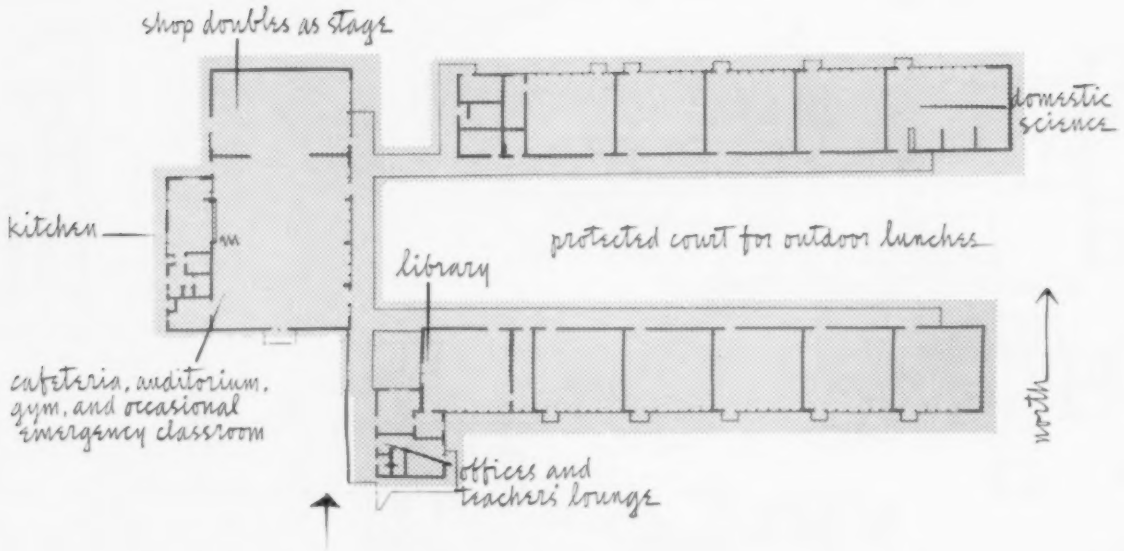


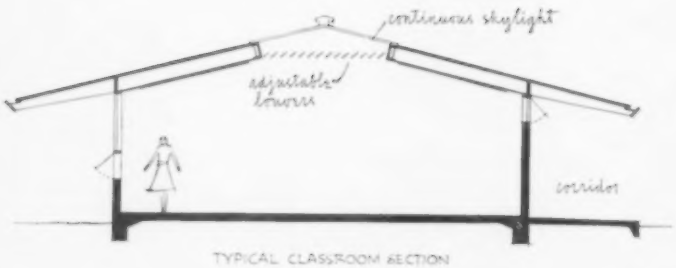
7 Lowell, Massachusetts
HUGH STUBBINS ASSOCIATES, ARCHITECTS



elementary school: **Marin County, California**

It is not unusual for financial or physical handicaps to turn themselves, at times, into assets, from the design viewpoint. In the case of this school, the physical liability was a swampy site requiring costly compacted fill and 40-foot piles for every structure. This was coupled with a very modest budget, plus timing that coincided with a steel shortage. The buildings had perforce to be of simple construction employing lightweight materials. The result is an unassuming but well-composed building complex in keeping with the residential character of the community. The use of steel was limited to framing the skylights of the classrooms, but its use here did offer the advantage of continuous overhead daylighting. Otherwise, wood is the dominant building material. It appears boldly in the laminated arches of the central multiuse structure. Native redwood surfaces exterior walls; resawn, stained, and sealed, this redwood introduces a soft color without glare; 3/8" plywood treated with stain wax provides the pleasant interior wall surface in cream yellow, gray, and green tones. Radiant heat in the concrete slab was specified for classrooms. "But," say the architects, Corlett & Spackman, "were the job to be done again we would seriously consider convector in lieu of radiant heating. Although radiant heat is comfortable and acceptable, its lag and lack of any ventilation feature is less than ideal." For this school, H. H. Wang was Structural Engineer; G. M. Simonson, Mechanical-Electrical Engineer; Dariel Fitzroy, Acoustical Engineer; E. H. Moore & Sons, General Contractor. *Photos: Phil Palmer*

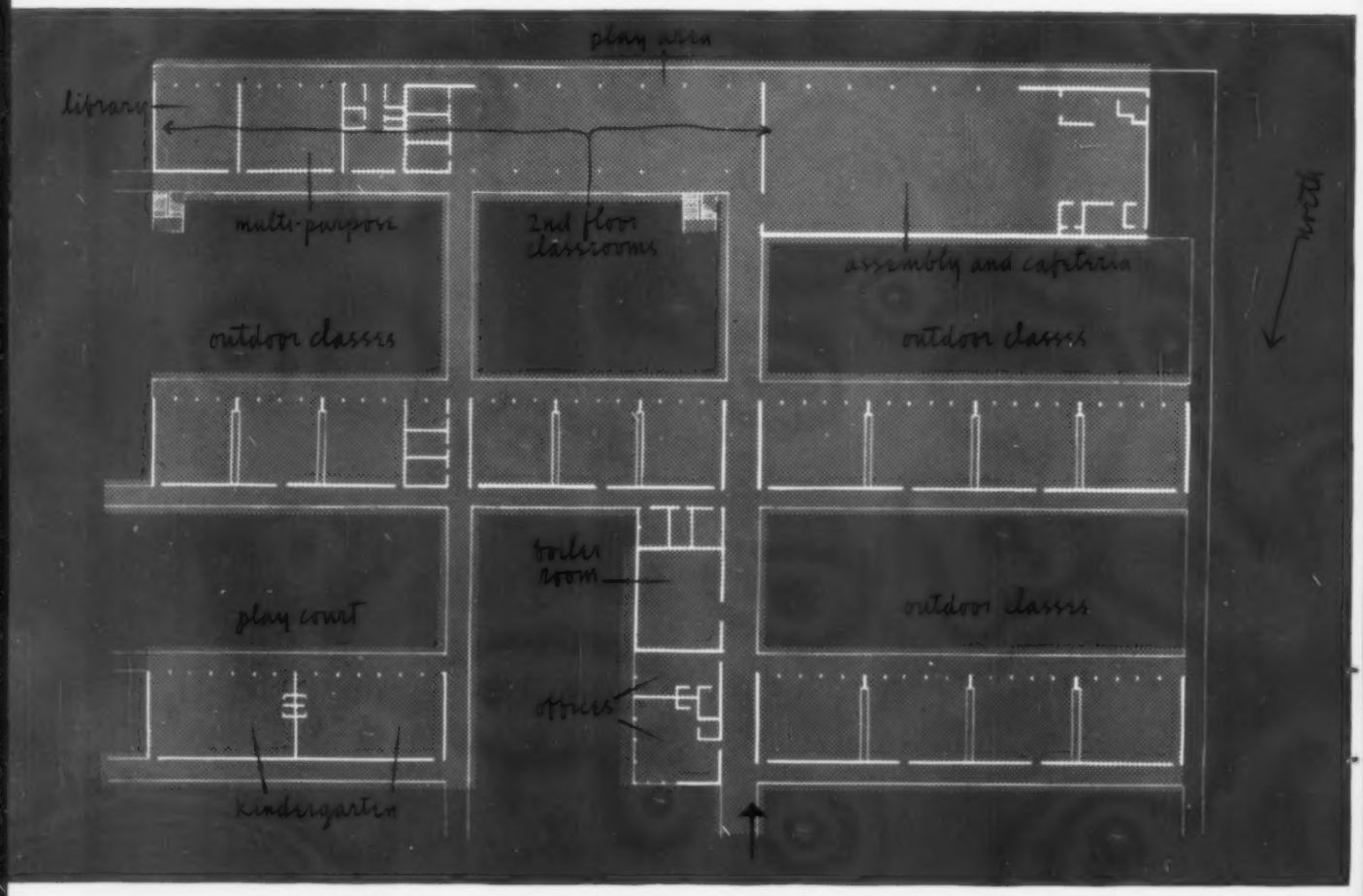


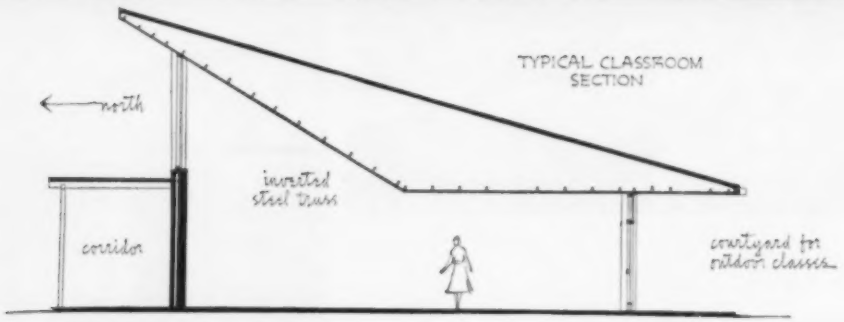


TYPICAL CLASSROOM SECTION

elementary school: **New Orleans, Louisiana**

This school for 750 kindergarten-to-sixth-grade pupils is located in a densely populated area, on a site measuring approximately three acres. It is anticipated that a portion, or all, of an adjoining public park will be available later as a school playground. "Because of local climatic conditions with approximately seven warm months," explains Sol Rosenthal, the Architect for this school, "it was felt that all classrooms should face the south and be shielded in outlook from other classrooms. This resulted in the use of the single-loaded corridors . . . the first utilized on any school in New Orleans." All classrooms, except those for the oldest age group were accommodated on the ground level. Outstanding structural design feature is the inverted steel truss, supported on steel columns placed 8 feet on centers. This inverted truss serves not only structurally but, closed in with a white acoustic tile ceiling, also reflects natural light into the classrooms. Column spacing was based on a 4-foot module followed throughout the entire plan. Vertically, a 2-foot module was adopted. Exterior materials are face brick and colorful porcelain enameled panels. Flooring throughout is asphalt tile and ceilings are surfaced with acoustical tile. Heating is provided by a gas-fired radiant system. Charles R. Colbert was Associated Architect for this school; A. G. Seifried was Landscape Architect; Lewis G. Hooper, Structural Engineer; A. R. Salzer, Jr., Mechanical Engineer; Louis N. Goodman, Electrical Engineer; and Lionel F. Favret Co., Inc., General Contractor.



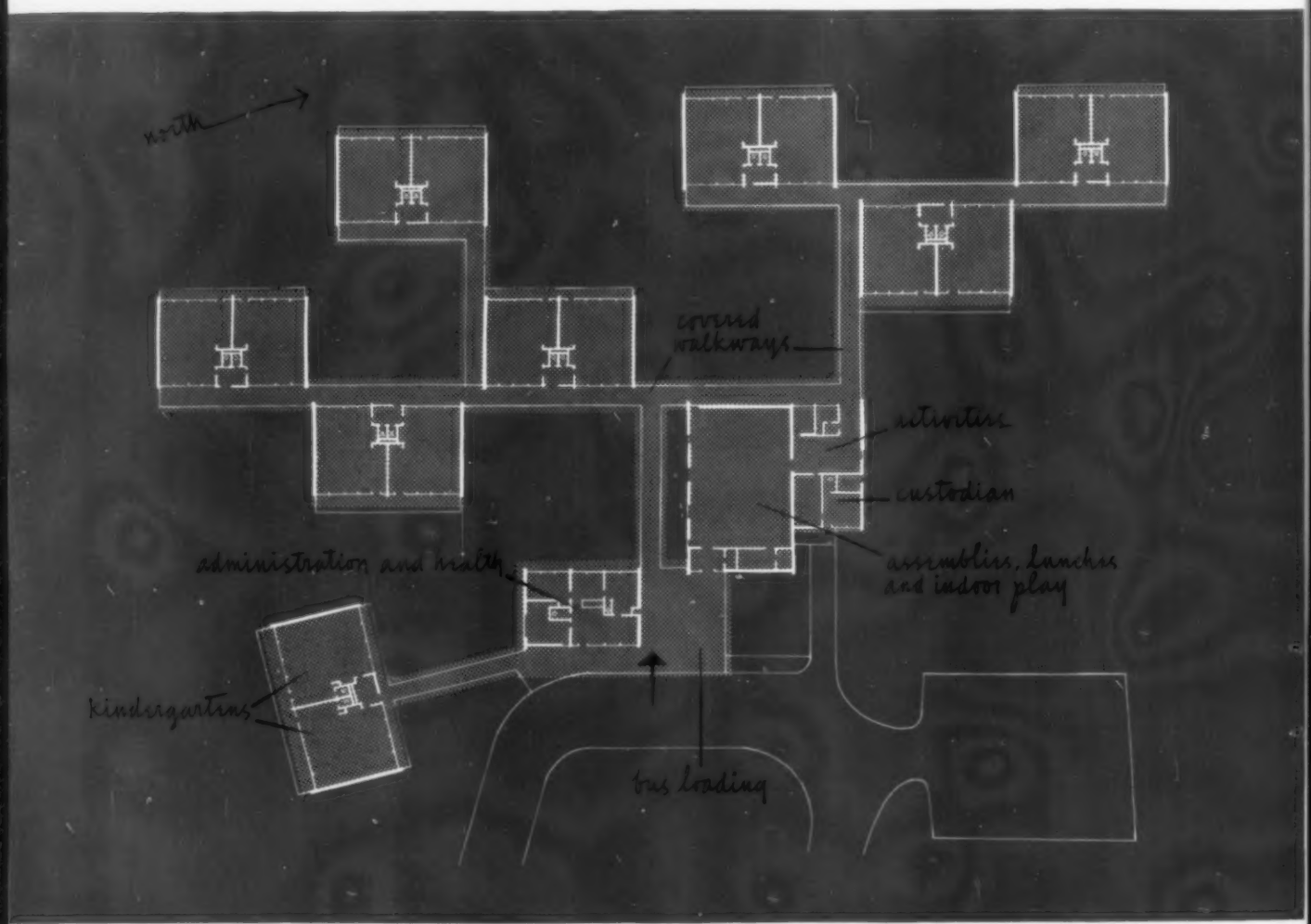


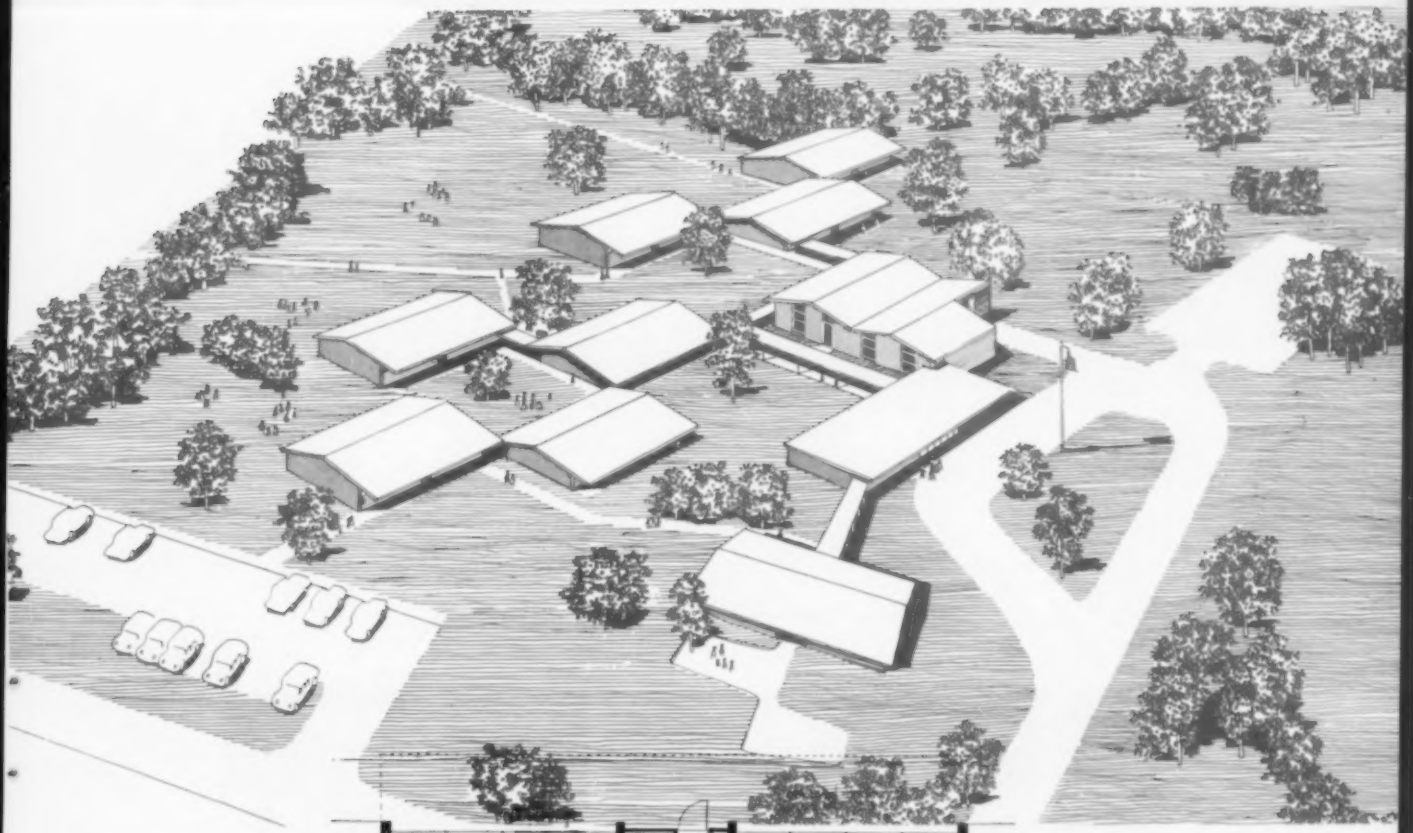
Classrooms (below) *receive natural light through glazed aluminum doors along the south side and through high windows, permitted by placement of trusses. The mild local weather allows outdoor classes in the adjoining court during most of the year. Dividing walls between classrooms are formed of cabinet sections bolted together. These walls may be placed anywhere along 8-foot modular intervals. In anticipation of future changes, additional controls for lights and public-address system have been provided. Artificial light is supplied by fluorescent troffers set flush with the finished ceiling.*

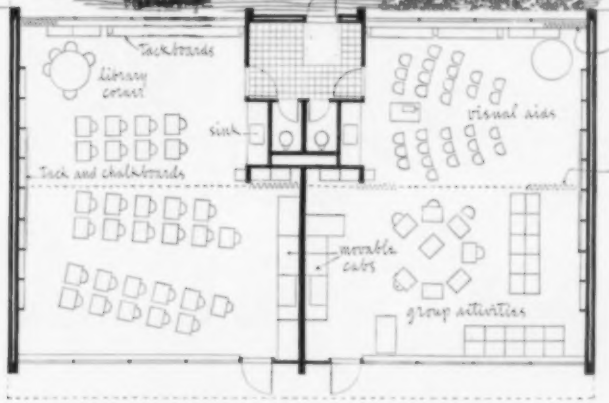
Photos (top, and top right): C. F. Weber
Other Photos: Clarence John Laughlin

elementary school: **Waldwick, New Jersey**

Indicative of the new and more diversified elementary school plan is this campus scheme, designed by the New York architectural firm of Ketchum, Giná & Sharp, presently under construction in Waldwick, New Jersey. In the development of the plan the sloping site of 13 wooded acres played an important role. To preserve the site's natural features as well as the residential character of the surrounding community, classrooms were grouped in pairs and treated as individual buildings. All of these will be bilaterally lighted through low-silled windows facing outdoor play and teaching spaces and through high windows on the walkway side. All will be heated by individual gas-fired furnaces distributing forced warm air (*see page 7, December 1955 P/A for detailed account of this decentralized heating system*). For the present, seven of these two-classroom buildings are to be constructed, but expansion is possible in any direction within the site limits and without disturbing completed units. Focus of the whole building complex is a central multipurpose building where pupils will congregate for lunch, assemblies, music practice, and indoor play. Another separate unit houses administration, health office, teachers' room, and storage space. All buildings are linked by covered walks. David Tukey, of Ketchum, Giná & Sharp, is Project Architect, and Jay C. Van Nuys & Associates, Architects, are Consultants on this school. Severud, Elstad, Krueger are Structural Engineers; Tectonic Associates, Mechanical Engineers; and V. Lehmann Construction Company, General Contractor.



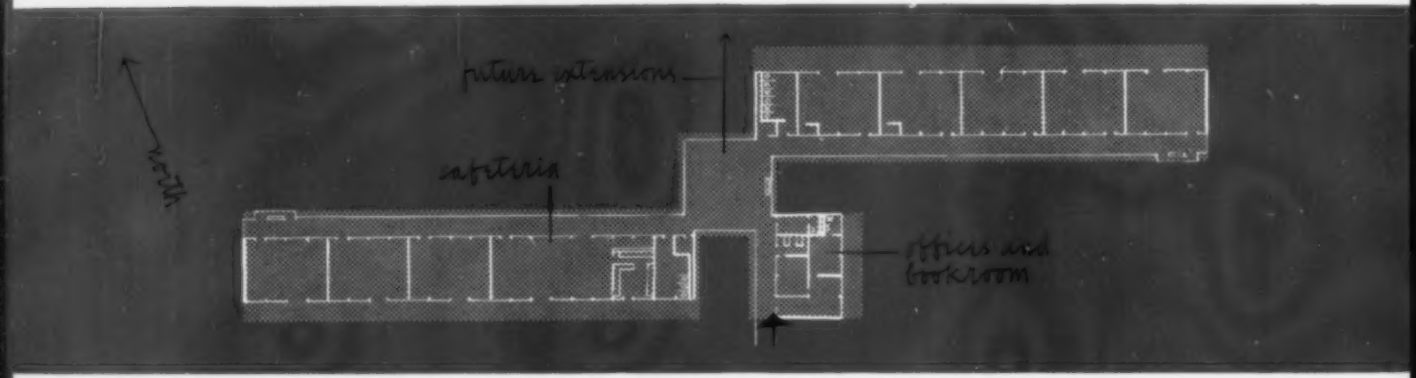


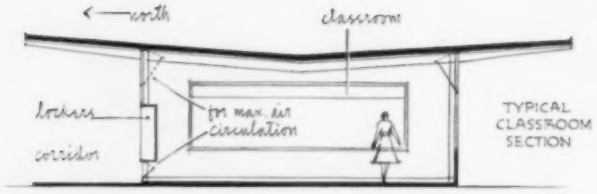


TYPICAL CLASSROOM BUILDING

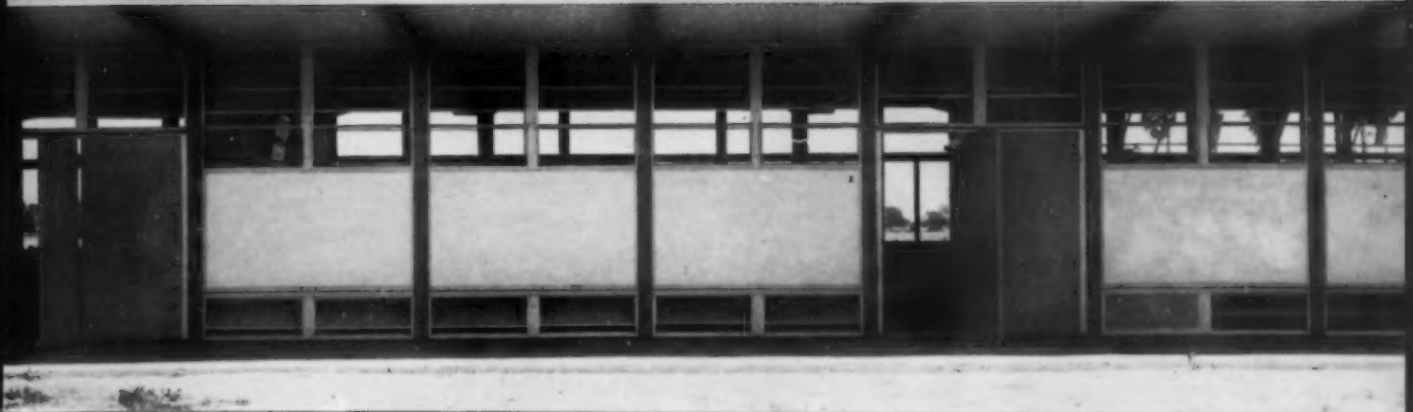
elementary school: **San Benito, Texas**

One hundred percent expansion is also foreseen for this elementary school located in the center of a newly developed residential section of San Benito, Texas. At that time the present free-standing canopy will be extended to link with the additional classrooms. Wings are staggered and will continue to be added in this manner to encourage air circulation. Cross ventilation was also a major factor in the design of the classrooms, which have operable windows toward the north and south. Windows along the corridor side, for ventilation as well as daylighting, are placed above and below rows of metal lockers which assist in blocking vision into the classrooms. Extensions of the steel-framed butterfly roof form wide sun baffles and shelters for the open corridors. Artificial lighting is supplied by slimline tubes anchored to the web of the ceiling beams on the side away from the line of vision. Partitions between classrooms are movable and serve as continuous teaching surfaces. For economy a rigid steel frame, using multiple steel bents 7'-5½" o.c., was chosen. To this frame work, steel sash and precast concrete panels bound in metal, have been attached. End walls of the classroom wings are of brick to add windbracing and pleasant touches of color and texture. Foundations were designed as concrete integral beams and slabs. Roofing is of wood decking, painted and left exposed on the underside, and topped with built-up roofing over 1½" rigid insulation. Architects-Engineers for this school were Cocke, Bowman & York of Harlingen, Texas, and General Contractor was Parker Construction Co.





Small building (above) *placed perpendicular to classroom wings contains administrative offices, teachers room, book room, and clinic. Rigid steel bents* (below), *fill-in panels of precast concrete, operating sash, and wood doors have all been organized into a handsome pattern at corridor side of classroom wings.* Photos: Ulric Meisel

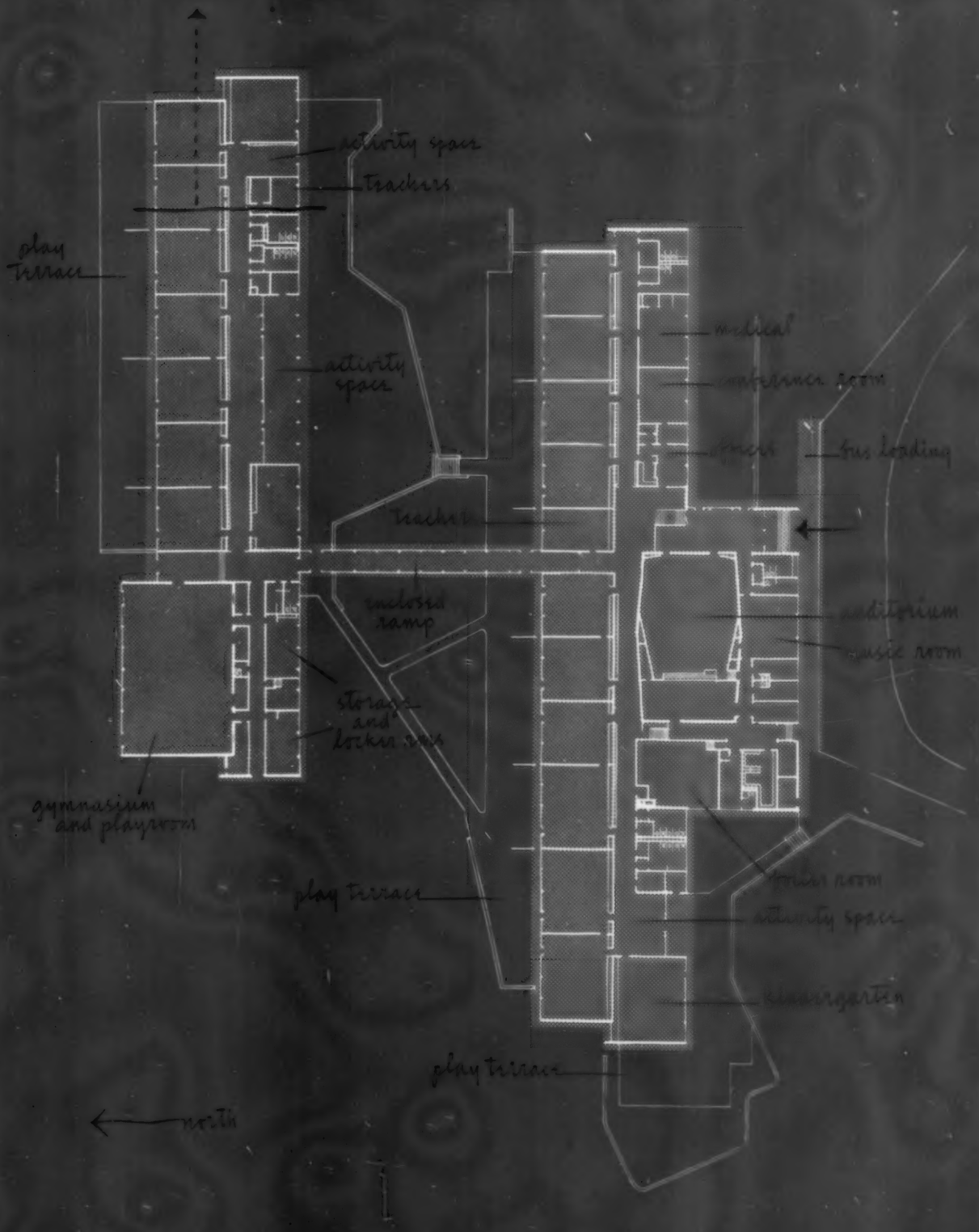


elementary school: **Weston, Massachusetts**

In its project stage, this school designed by Hugh Stubbins Associates was accorded a P/A award citation. Two honor awards have since been added, and a review of the architects' accomplishments on completion of the structure is of interest. An irregular site has been turned to advantage by dispersing the complex into two parts—an upper wing from which the school is approached, and a lower wing—interconnected by a glazed corridor (*below*). Benefits of this scheme are many: existing trees have been salvaged, upper grades are logically separated from kindergarten and lower grades, all but three classrooms have north exposure for constant daylighting and privacy. Classroom arrangements and selection of special equipment were largely based on the recommendations of a special school committee composed of teachers, superintendent, and principal of the school. In consonance with these recommendations, classrooms (*bottom*) are just off square, all have skylights, three-ring incandescent lighting, unit ventilators, built-in counters with sinks and drinking fountains, movable furniture, and ample storage and tack-up space. The basic structure is a welded-steel frame. Exterior walls employ brick or vertical siding with cinder-block back-up. Floors are of reinforced concrete, and roof construction is of perlite concrete on welded-wire reinforcement. Heat is supplied by an oil-fired steam system. Chambers & Moriece were Landscape Architects; LeRoy Hersum, Structural Engineer; R. G. Vanderweil, Mechanical Engineer; J. A. Singarella Co., General Contractor.

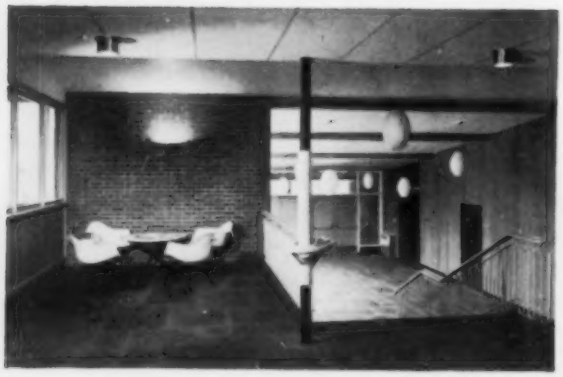
Photos: Gottscho-Schleisner

TYPICAL SECTION



elementary school: Weston, Massachusetts

Gymnasium (top), *also used by town recreation department, has separate controls for heating and ventilating. Structural roof planks offer acoustical and thermal insulation. South windows are of heat-absorbing glass. Circulation areas* (below) *are of generous size, pleasantly scaled and lighted. For ease of maintenance, bluestone flooring and glazed-brick walls have been used along the most heavily traveled routes. Wide corridor in the lower wing* (above) *forms activity space. Enclosed ramp* (above left) *connects upper and lower wing. Portion of main entrance lobby* (below) *is set aside as a waiting area* (below left) *for offices.*



Teacher's rooms (right) *are located in both the upper and lower wings. Secretarial office* (below) *connects with principal's office and overlooks entrance lobby. Auditorium and related facilities are situated near parking area and main entrance* (bottom) *for convenient use by community groups in the evenings.*

Kashmir
Pakistan
CHANDIGARH
LAHORE
DELHI
Nepal
India
CALCUTTA
Burma
BOMBAY
East Pakistan
MADRAS
Arabian Sea
Bay of Bengal

CHANDIGARH

a progress report by George A. Sanderson

When India received independence in 1947, the State of Punjab was split in two. Lahore, the former Capital, went to Mohammedan Pakistan, leaving the Hindu Punjab without a Capital. Administration continued in temporary quarters in Simla, but it was early decided to build a new Capital. Not only that: the government determined to construct the most up-to-date city possible, designed by world renowned architects and planners.

An extensive survey of the Punjab was made in 1950 by the government's chief engineer, P. L. Varma, resulting in selection of an 8918-acre site on a plateau 1300 feet above sea level, at the foothills of the Himalayas. An area of farms and small villages, the place took the name of Chandigarh from the one existing village with a railroad station.

Initial stages of the planning were achieved by Albert Mayer (Mayer & Whittlesey, New York) and the late Matthew Novicki. As it is actually being built, however, the city is the work of a European design team, headed by Le Corbusier. The final scheme is a radical departure from the Mayer-Novicki proposals, but certain basic elements, such as the superblocks of neighborhoods, have been retained. Working with "Corbu" have been his cousin, Pierre Jeanneret; the British husband-and-wife team of architects, E. Maxwell Fry and Jane B. Drew; and a group of Indian architects and planners.

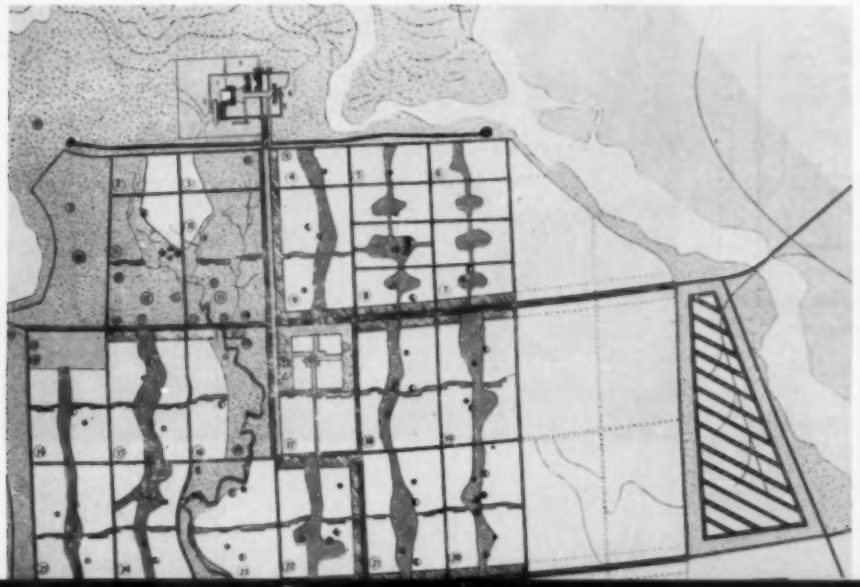
Base of the city plan—initially being built for a population of 150,000, but eventually to be a city of half a million—is a rectangular grid of heavy traffic roads enclosing self-contained neighborhoods (called sectors), each about three quarters of a mile long by a half a mile wide. Population of the different sectors ranges between 5,000 and 15,000 persons. The road-and-sector system almost completely separates vehicular and pedestrian traffic. Each sector is divided transversely by a shopping street, and longitudinally by a park belt—the site of schools, nurseries, community center, etc. The sectors are interconnected by the shopping street, running across, and by park belts, lengthwise.

North of the residential neighborhoods—made up of 13 different types of houses, to accommodate varying income levels—is the group of Government buildings. All being designed by "Corbu," himself. First completed unit is the Supreme Court building (*across-page*). Northwest of the city is the University section, where the Engineering College, designed by J. K. Chowdhury, Punjab State Architect, has been completed. On the southeast periphery is the relatively small industrial area.

Le Corbusier likens the city plan to the human body—with the Capital group forming the head; the sectors, the body; and the city center, the heart. The park belts he terms the lungs; the educational area, the left arm, and the industrial area, the right arm.

Design of the buildings stemmed very directly from the available materials—chiefly brick—and the extremely variable climate. Winters, though short (December to February) are cold, with the thermometer hovering around freezing. A hot, dry period lasts from March to June; followed by the torrential monsoons, during which insect life multiplies and the weather is hot and humid. This lasts until about September, when dry warm weather ensues before the cold.

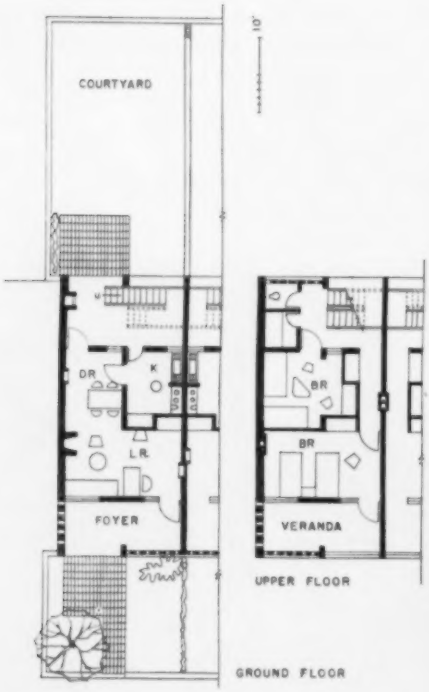
The pedestrian can traverse the city in both directions, either as a shopper or a park stroller, without walking on the major traffic streets. Though each sector has its own neighborhood center, there will also be a commercial center.

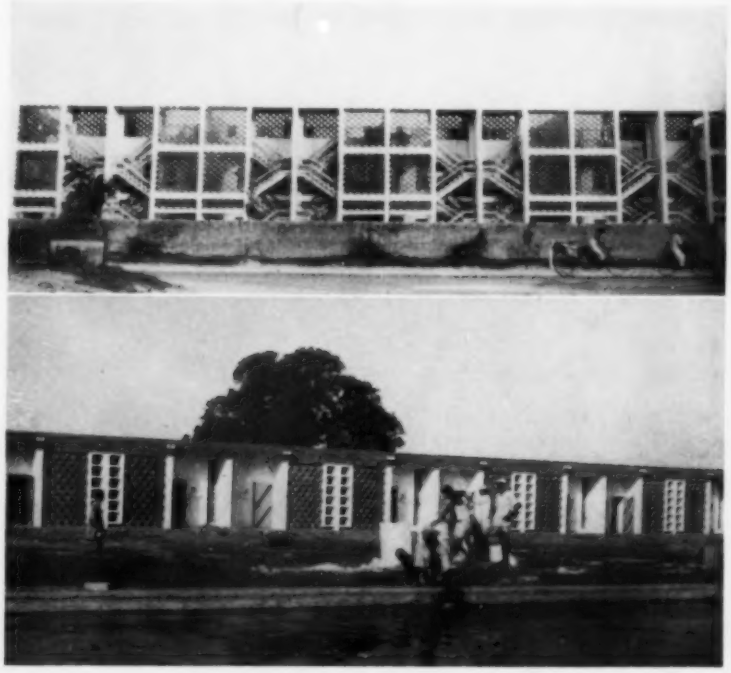


Chandigarh: a progress report

House plans—13 different types for the different income levels—had to be developed to cope with the extraordinary range in temperatures from oven heat to freezing cold. For the winter, a compact, well-insulated house that invites the sun is desirable. When the hot weather approaches it becomes increasingly unpleasant to stay indoors, as after sunset the outdoors is cooler than indoors and much pleasanter for sleeping. By daybreak, the house has lost some of its heat, while the outside air is rapidly becoming hot again. Hence, the custom is to close all doors and windows and draw the curtains to keep in the freshness. During the monsoon, circulation of air is extremely important. It is not possible to sleep outdoors because of the rain, but next best is a protected veranda. If one sleeps wholly indoors, windows and doors must be opened to induce cross air flow.

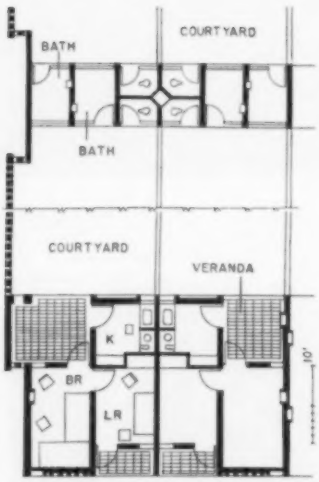
As a result, all house types—and the two shown below by Pierre Jeanneret demonstrate this—have at least the following elements: a nucleus of rooms suitable for the period of maximum heat, with small openings but always permitting cross ventilation; verandas for sheltered living and sleeping during the monsoon; a garden, backyard, or rooftop for outdoor living and sleeping during hot, clear weather. Even the row houses provided for the very lowest income level (*bottom photo* and *plan acrosspage*) contain these elements—plus bath and toilet facilities.





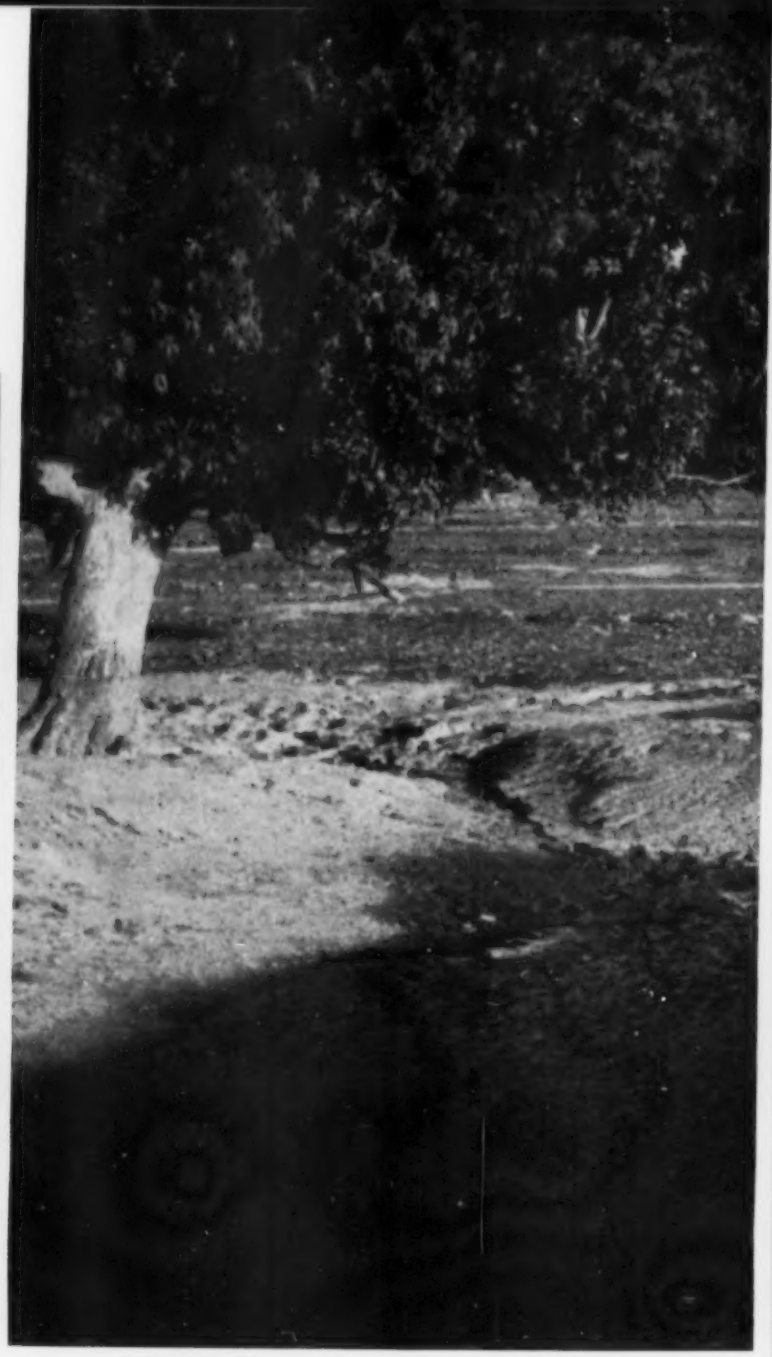
Typical nonresidential structures (acrosspage, left to right) *include shops by Jane B. Drew; a high school by the same architect; and the Engineering College, by J. K. Chowdhury, Punjab State Architect. Widely employed are various pierced screens that allow air flow yet temper the strong sunlight.*

Photos: Ganguli Studios



Most residential types have concrete slabs and walls are of brick—which is transported on the heads of women as well as by donkey back. By far the least costly material at Chandigarh, brick has been extensively used. Note the various fresh forms and essays in contemporary design expression that have been developed with this time-honored material—chiefly by Pierre Jeanneret.

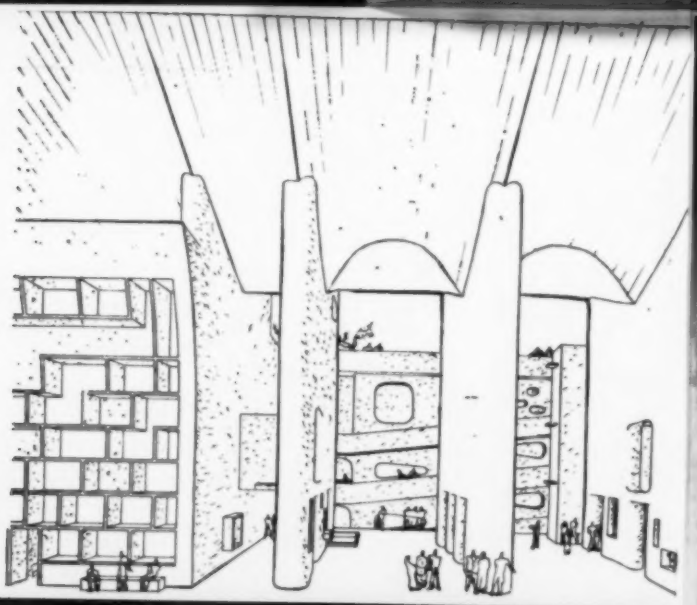
Chandigarh: a progress report

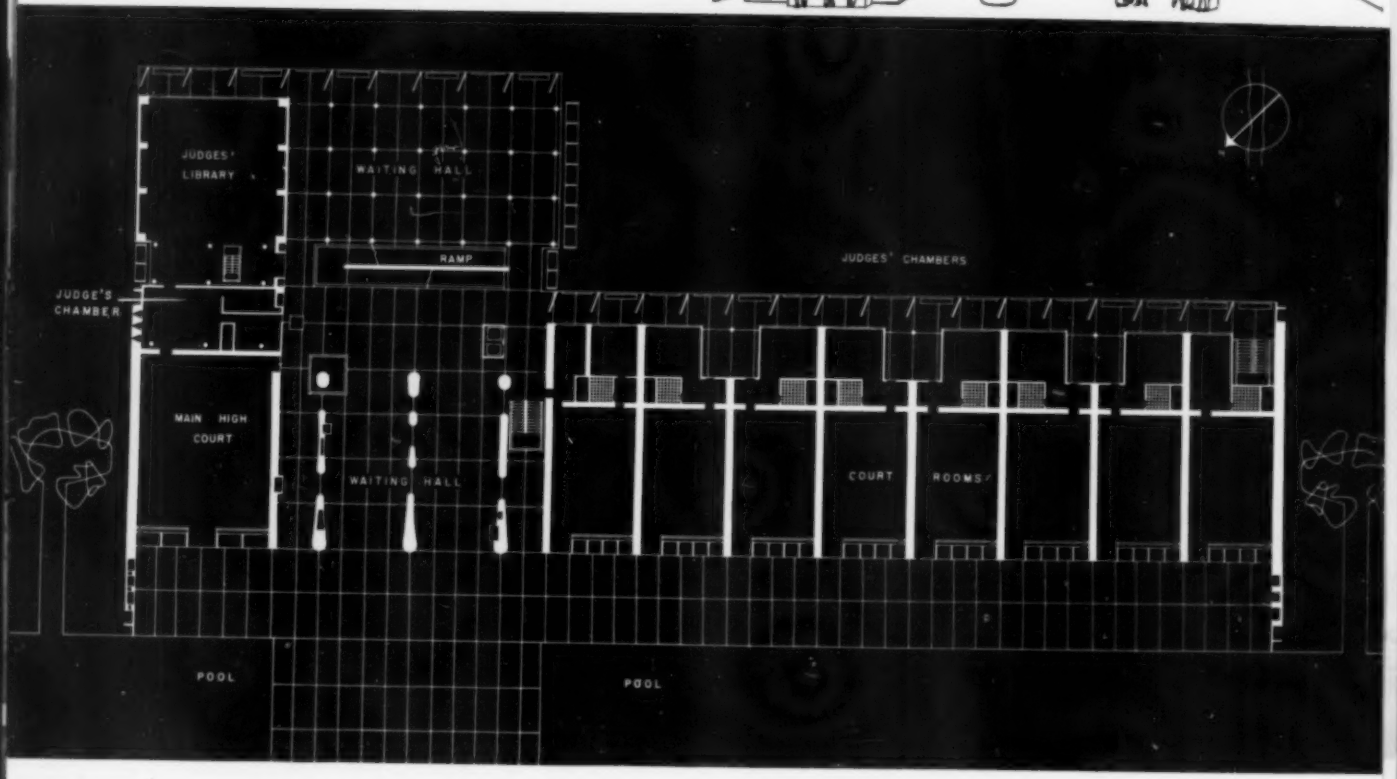


"Corbu" *Chief Engineer Varma*

Le Corbusier's amazing Supreme Court building—first element completed in the Government center—is without question the biggest conversation piece in Chandigarh. Basically a reinforced-concrete structure, it uses brick partitions. And, to meet the climatic conditions, the architect boldly raised a structural umbrella above the rooftop, cantilevered out from the main frame. The conoid vaults within this soaring contrivance are nonstructural—of plastered metal lath suspended from the roof slab. Sunlight is variously baffled and diffused along exterior walls of the building through a vigorous grid of *brises soleils*. Rough stone is used to floor open areas, such as verandas, entrance portico, and terraces. Cement and terrazzo are employed in interior rooms.

Design of the building is based on the system of harmonic and arithmetic proportions that "Corbu" calls Modulor, the governing proportion of which is the Golden Mean or *Section d'Or*. The bare concrete was left exposed after the formwork was stripped—requiring painstaking study of the formwork, which was detailed months in advance. As a foil to the large expanses of rough textures, the architect has introduced some small, brilliantly colored niches in the design. The Governor's Residence and Assembly building will be the next units built in the Capitol complex.




JUDGES' LIBRARY
WAITING HALL
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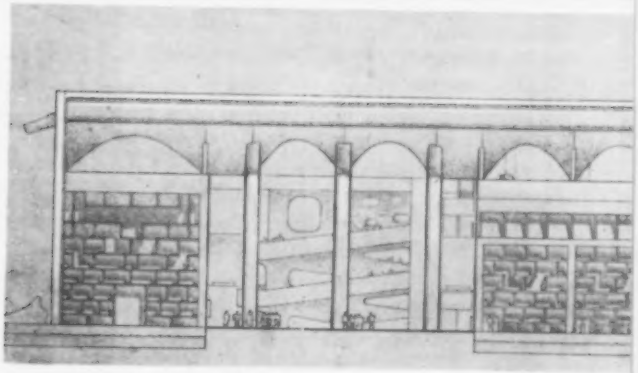
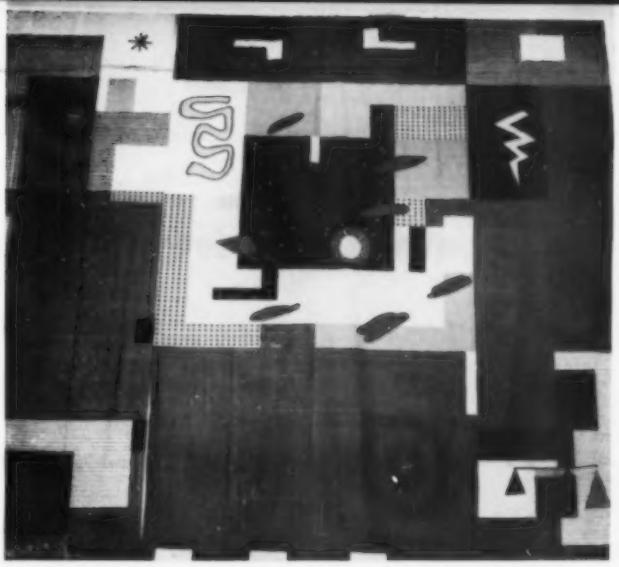
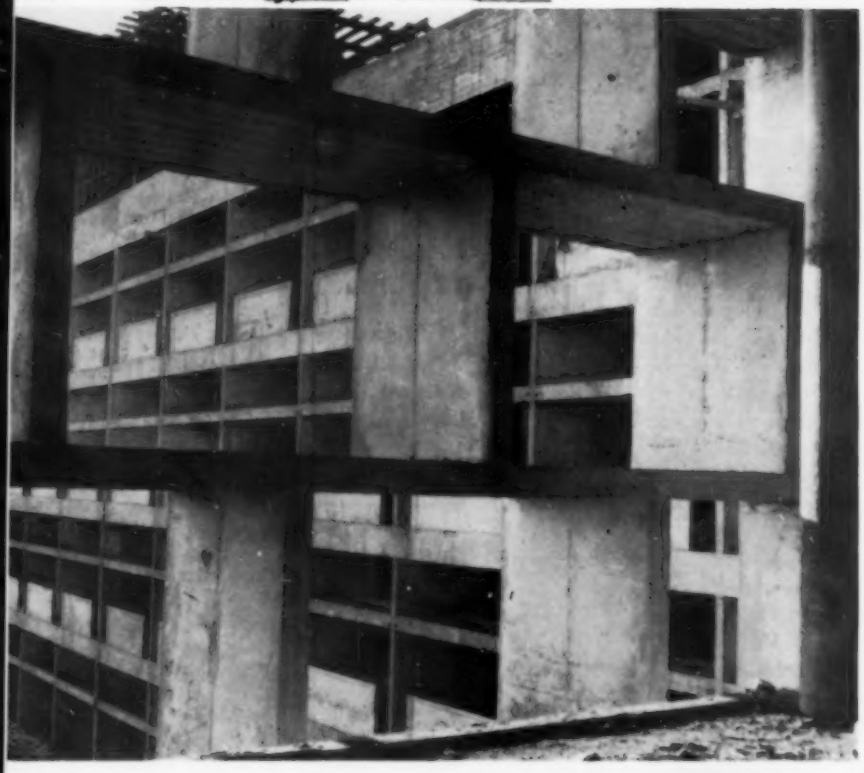
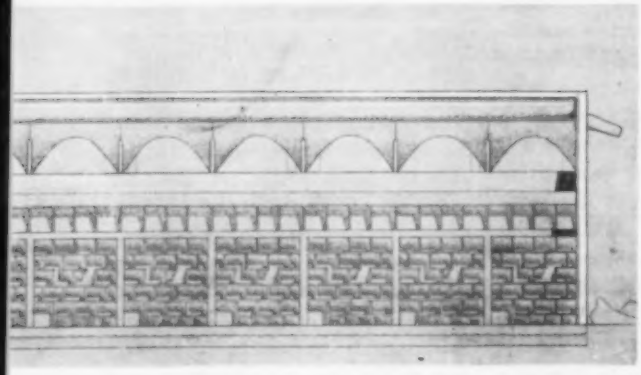


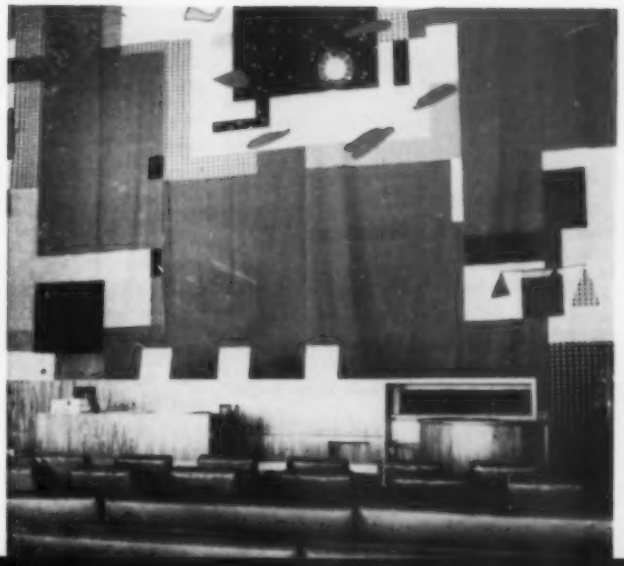




The vast entrance hall—full height of the building—leads to the various interior spaces. On the main floor are nine court rooms and the judges' chambers. Offices occupy the three upper floors; and a restaurant on the fourth floor commands a magnificent view.

The court-room interiors (above and below) *are starkly simple, white plastered walls. On the walls behind the judges' benches are woolen tapestries of great richness and bold color—designed by Le Corbusier.*





weather tests determine rigid window specifications

by Bruce M. Haldeman*

Specifications for the allowable infiltration of air and water through windows are becoming a standard consideration in today's building picture. Static and dymanic tests to determine window characteristics have been developed as an exacting basis for these rigid specifications. Both specifications and tests are discussed in this article.

Extremely exacting weather tests to determine air and water infiltration through window sash are a recent and significant development in the window industry; likewise, specifications for the tightness of window closure become increasingly important with the hundreds of types and styles of aluminum and steel window-sash available. Air infiltrating during hot summer months in an air-conditioned building, or cold air infiltrating in winter months, can add tremendously to the operating costs of the building. The more framed-glass area a building may have, the more acute the problem of tight seals becomes.

Infiltration specifications for the design and selection of windows are based on weather tests and, thus, should include mention of the test procedure. Attention to these specifications will insure economic operation of a building without raising initial costs for the builder and owner.

Dynamic tests, the real crux of the matter in weather testing, cover wind and water infiltration as well as allowable deflection of the metal membrane in curtain-wall units. Such tests cover those conditions of variable wind pressures normally expected on the face of a building. The precise mechanics of wind forces on a building are not wholly determinate, as these forces vary radically according to the building shape and height, nearby structures, and the surrounding terrain. Wind forces change rapidly and erratically due to these factors and due to the turbulence of the air current itself.

These varying dynamic stresses on the face of a building arise not only from wind-intensity changes, but also from changing low-pressure areas (suction areas) adjacent to the building. These areas affect the internal pressures of the building which, in turn, have an important effect on the air and water infiltration of the face members, as well as the deflection of the exterior-skin members.

Because of severe turbulence in the layer of air built up close to the structure, dynamic pressures from gale and hurricane winds change rapidly in intensity and position. More or less steady wind pressures tend to produce vibratory stresses, while gusty gale winds are inclined to produce simply rapid changes in pressure.

In metal curtain-wall contruction, the allowable deflection of the metal skin, to prevent cracking plaster for instance, can be a critical factor in the design of the spandrel-window unit. Dynamic weather tests of the complete unit design can determine the performance of the spandrel panel, and the metal membrane can be stiffened, if necessary, to achieve greater rigidity in the unit.

Procedures for dynamic weather testing have been established by various research groups and the procedures set forth here are applicable to window and modern curtain-wall construction.

To simulate dynamic conditions for the weather test, the skin structure or curtain wall is installed on the face of a test building, and may or may not be equipped with windows. The test specimen is anchored to I-beams on the interior of the test building, as it would be in an actual building.

In wind and water tests, simulated torrential rainfall is produced by introducing a water stream into the vortex of the wind-generator blade *(Figure 1)*. This water is carried approximately horizontally until it strikes the face of the test specimen. More water is appplied from above and just in front of the test building to assure abundant simulated rainfall between the gusts of horizontally borne water. This simulated rain may be measured in gal/min and adjusted to in./hr for any number of conditions.

A standard test of 12 min of wind and water is sufficient to infiltrate an easily measurable quantity of water. Air infiltration of any window may also be measured, but if the standard static air-infiltration test has been carried out, this measurement is superfluous, and not suitable for qualitative comparison.

Pitot impact tubes placed at the wind generator record wind velocities at this point in miles per hr. Static tubes or transducers indicate pressures at the face of the building, rainfall apparatus record the amount of applied water, and the water infiltration is measured. Deflection gages placed about the test specimen record the movements of the skin from the interior of the test building.

Due to the layering effect and turbulence of the air on the face of the test building, it is incorrect to record velocities at this face. Specifications should state maximum psf pressure to be used.

* *Research Test Laboratory, General Bronze Corporation, Garden City, N. Y.*

Allowable deflection to be permitted in the individual skin panels along with allowable deflection of skin structural members should be specified. Wind-caused deflection in curtain walls of modern buildings is expected to be greater than the deflection of the structural members of the building proper. Sufficient clearance on the interior of the skin members should be given to obviate possible damage to plaster and other nonloadbearing elements in the building.

A sample specification of the Dynamic Weather Test should read:

"The water infiltration of windows shall not be sufficient to overflow the sill interior with window in closed position and locked. The water infiltration seepage at joints of spandrels, curtain walls of other exterior skin members, shall not be sufficient to spatter the interior-wall assembly, and suitable baffle-gutters shall be provided to collect and lead out such water to the exterior. Said baffle-gutters shall project above slots or holes provided for weepage, and shall shield interior-wall assembly from spatter.

"Inward deflection of any part of spandrel, curtain wall, or other exterior skin member shall not be sufficient to cause skin member to touch any part of nonloadbearing interior-wall members, but in any case the deflection shall not exceed 1/375 of the narrowest span between anchors, or skin-fastening means.

"The velocity of the air stream at the wind-generator blade shall be no less than 100 miles per hr from a 5-ft-radius propeller blade providing at least 400,000-cfm discharge of air at the blade, and in any case the mean dynamic pressure at one point on the face of the test specimen shall be no less than 20 psf (3.85 in. water) as indicated by a standard calibrated manometer and pen recorder. The test specimen shall be subjected to the dynamic test for no less than 12 min and the finely dispersed water drops shall be injected in the air stream in such a manner to apply to the face of the test specimen no less than 4 in. water per hr per sq ft of specimen frontal area (2½ gal/sq ft/hr)."

The already well-standardized static weather tests for window and modern curtain-wall units cover conditions of constant and steady pressure appplied to the window surface by motor-driven propellers or blowers. In the static tests, it is assumed that wind presure per unit area on the test specimen is uniformly distributed.

Air infiltration through the test product is measured as cu ft per min per ft of sash perimeter (cfm/ft). The window or other product to be tested is mounted as a wall between two airtight chambers *(Figure 2)*, and an equivalent wind velocity is applied as static pressure against the exterior face of the specimen in one chamber while the infiltrated air is collected in the second chamber.

A sample specification based on the static weather test should read:

"The air infiltration shall not exceed —* cu ft per min per ft of sash perimeter with unit in closed position and locked, and the static pressure, equal to the pressure exerted by wind at a velocity of 25 miles per hr, shall be 1.560 psf, Enswiler formula. The velocity pressure and infiltrated-air pressure shall be measured by micromanometer of the differential-displacement type with balance,

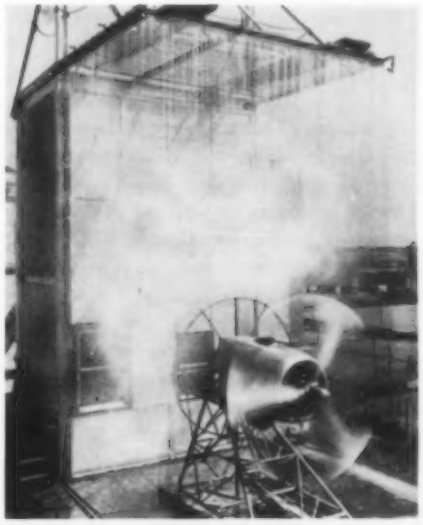
*"*Recommended maximum values vary according to type and size of window. From recommendations of the Aluminum Window Manufacturers Association:*

for commercial and residential double-hung, casement, and awning windows—0.50cfm;

for residential double-hung and sliding windows—0.75 cfm;

for residential casement and awning and all projected windows—1.00 cfm."

Figure 1—in dynamic testing, a heavy wall of overhead water struck by the air blast from an airplane engine simulates hurricane conditions.



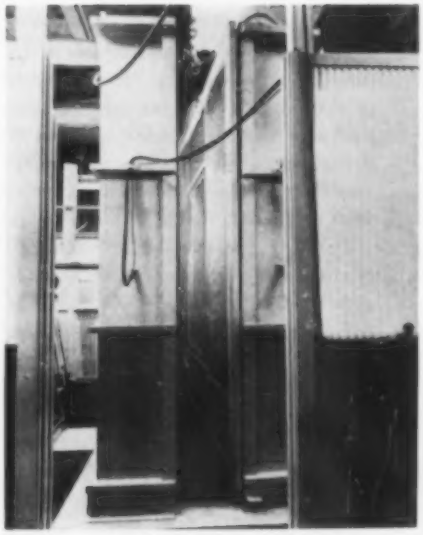


Figure 2—static weather-test chamber—with wall panel and window unit in place—is shown ready for closure.

and the infiltrated air shall exhaust to atmosphere through a standard sharp-edge circular orifice in .057 in. plate."

The Emswiler formula mentioned in this specification is a wind-velocity pressure equivalent, generally used only for static weather testing and recognized by leading laboratories and the Aluminum Window Manufacturers Association. This formula is written $P_1 = .00249V^2$—where P_1 is the pressure psf due to wind velocity normal to the exposed surface, and V is the velocity of wind in miles per hr. The Emswiler formula gives a pressure equivalent of 1.560 psf for a wind velocity of 25 mph.

In static weather testing it is assumed that the load caused by the wind is constant. For usual comparative purposes among window designs, a wind velocity of 25 mph is used as a primary criterion since winds above that speed would prevail only in extraordinary cases. At the pressure equivalent of 25-mph winds, sufficient air infiltrates to be measurable.

This infiltrated air is allowed to escape from the test chamber to atmosphere through a standard thin-plate orifice which has been previously tested to find its discharge characteristics: pressure difference across the orifice is equivalent to a certain volume of flow through the orifice. The mean total volume in cfm may then be computed to find the actual infiltration of air—cfm/ft.

A micromanometer measures pressures across the orifice and the equivalent velocity pressure from the induced wind on the test specimen. This method permits accuracy and consistent results that cannot be obtained readily by orifice-velocity measurements alone.

If a rotating-blade, mechanical-type anemometer is used for measuring, inertia may be sufficient to indicate no infiltration at all, yet in fact, there may be considerable infiltration. In the case of a spring-loaded, vane-type meter, friction of the air flow through the impact tube, or meter itself, gives rise to serious error, especially at low velocities.

The accepted laboratory procedure for the measurement of infiltrated air flowing into atmosphere under small differences of pressure** employs a micromanometer of the differential-displacement type with balance.

In writing a specification based on either the static or dynamic test, it is highly important that the static pressure equivalent, psf, for a given wind velocity be stated along with the method of measuring the flow of infiltrated air. This is necessary since there are two different formulas used for relating wind velocity to static pressure equivalent.

In dynamic testing, vibratory stresses set up by dynamic wind forces are more pronounced than static load analyses would indicate, and the impact caused by shifting and gusty winds on the face of a structure have shown the validity of using a higher wind-pressure equivalent than is used for the static test.

From the static test, specifications of the AWMA are based on the Emswiler equivalent ($P = .00249V^2$, namely 25-mph wind provides a pressure of 1.560 psf on exposed surface) and the specification writer should state both wind-velocity and pressure equivalent in his specification so that no misunderstanding can arise.

Now, the above formula is usually used for static weather testing of windows and doors, etc., while a second formula related to dynamic weather testing is used for buildings, spandrels, curtain walls, etc. This second formula, known as the Marvin formula, is stated as $P = .004V^2$.

Although the Marvin formula is used for pressure specifications in dynamic testing, these given pressures vary in intensity during gale and hurricane conditions and are not equivalent to static pressures. For the frame work of Class II buildings, the usual static wind loading for design purposes is assumed to be 20 psf for building heights up to 300 ft, plus 2 psf added increment for each additional 100 ft above the 300-ft level. For dynamic loading of skin structures, it is usually sufficient to specify 20 psf for mean dynamic wind pressure.

The Marvin formula states that $P = .004V^2$—where P is pressure in psf, due to wind velocity normal to the plane, and V is the velocity in miles per hr. In this formula, a wind speed of 25 mph produces a static pressure of 2.500 psf on the whole face of a structure, as opposed to a small window in an airtight test chamber used in the static test. A 70.7-mph wind produces 20 psf and a 100-mph wind a pressure of 40 psf. However, in winds of these gale intensities pressures vary erratically and are not actually equivalent to these static pressures derived under theoretical "ideal" conditions.

For comparative test purposes, it is assumed that pressure per unit area changes rapidly, is suddenly applied and erratic. The usual dynamic-test velocity at the wind generator or engine exceeds 100 mph and the indicated mean pressure per unit area on the test specimen is 20 psf. This is an average value of the constantly changing dynamic pressures, and should be suitably recorded during the test. It must be noted here that the approach velocity of a steady wind decreases rapidly as it approaches the face of the building. This effect is due to a layering phenomenon of the air, and only part of the velocity energy (not all as in a strict impact reaction) is given up to pressure on the face of the building. For this reason, the engine or wind generator should be located as closely as possible to the test building.

** *R. J. Durley, "On the Measurement of Air Flowing into the Atmosphere Through Circular Orifices in Thin Plates and Under Small Differences of Pressure,"* ASME Transactions, *Vol. 27 (December 1905), p. 193.*

residential steel doors

Steel doors and frames available in sizes to fit standard wall openings for residential construction can now be specified by architects and obtained from six door manufacturers who have formed The Steel Door Institute.

Members of the Institute have recommended voluntary standards of design, construction, and material through the Commodity Standards Division, U. S. Department of Commerce. A new, low total cost for these steel units has largely been made possible by mass production and standardization.

Besides price savings, members of the Institute cite other primary advantages to be gained by use of steel interior doors: maximum strength, easy installation, reduced erection time, sound deadening to eliminate metallic noise, minimum maintenance, and corrosion and fire resistance.

Swing doors can be obtained in flush and semiflush models. Also available are space-saving, sliding, steel closet doors in 3′, 4′, 5′, and 6′ opening widths and a standard height of 6′-8″.

Recommended material standards require that steel used in the doors shall be cold or hot rolled, pickled and oiled in minimum U.S. standard gages. Frames for 1⅜″ doors are 18 gage (.0478); those for 1¾″ thick are 16-gage (.0598) steel. Stiles and panels are fabricated of 20-gage (.0359) steel. Lock and strike, hinge, and closer reinforcements are of 16, 11, and 14 gage respectively, according to the specifications recommended.

Under these specifications, doors and frames can be obtained in the following opening sizes:

1⅜″	1¾″
2′-0″ x 6′-8″	2′-6″ x 6′-8″
2′-4″ x 6′-8″	2′-8″ x 6′-8″
2′-6″ x 6′-8″	3′-0″ x 6′-8″
2′-8″ x 6′-8″	2′-6″ x 7′-0″
3′-0″ x 6′-8″	2′-8″ x 7′-0″
	3′-0″ x 7′-0″

These newly available doors can be provided with louvers at bottom or top or with vision lights. The upper half can also be prepared for glazing, although glass must be supplied by others. Frames can be either fully welded or of the knock-down type. If the latter, they must have interlocking joints to produce square corners securely locked in place during erection.

Hinge location on door and frame is the manufacturer's choice. Location of lock knobs, however, is recommended on the center line of the 6′-8″ doors to permit either a right- or left-hand swing. Locks on 7′-0″ doors should be the same distance from the floor as on the 6′-8″ models. All mortising for hinges and locksets is done at the factory, thereby accounting for a good part of the time saved in installation.

Frames are provided with three adjustable T-shaped anchors per jamb where the frame is to be used in a masonry wall. For stud construction, three welded anchors per jamb are provided. Anchors are 18-gage steel.

Institute recommendations specify that swing doors be sound deadened to eliminate metallic clang. Some manufacturers accomplish this by filling hollow cores with bat-type insulation that is fire and moisture resistant as well as vermin proof. Others apply a heavy emulsion type of sound deadener to the interior surface of the door panels.

Institute members are: American Welding & Manufacturing Co., Warren, Ohio; Diebold, Inc., United Metal Products Division, Canton, Ohio; The Steelcraft Manufacturing Co., Rossmoyne, Ohio; Truscon Steel Division, Republic Steel Corp., Youngstown, Ohio; United Steel Fabricators, Wooster, Ohio; and Virginia Metals Products, Inc., Orange, Va.

A complete resume of specifications for interior steel doors can be obtained from The Steel Door Institute, 2130 Keith Bldg., Cleveland 15, Ohio.

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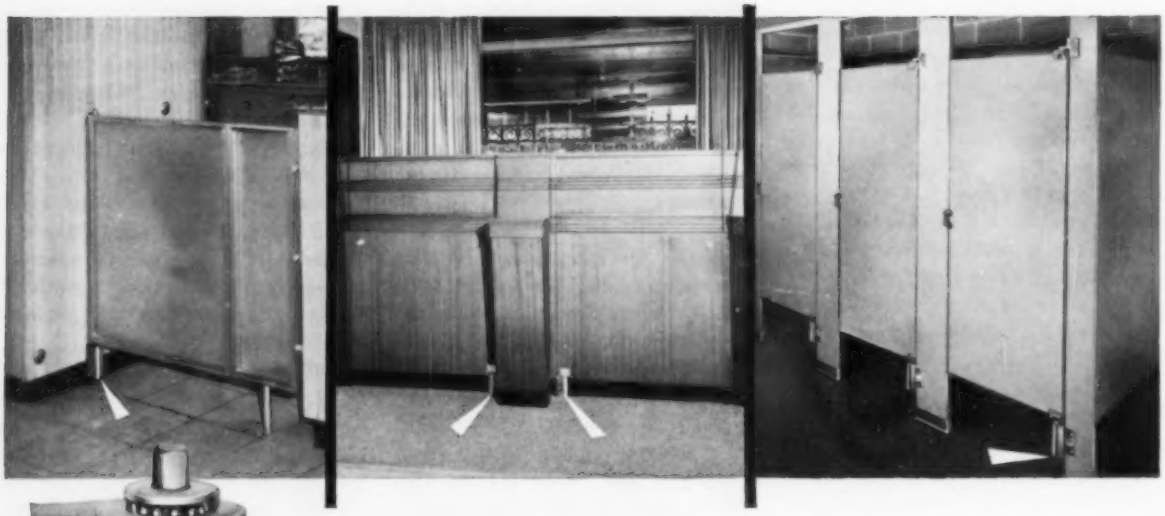

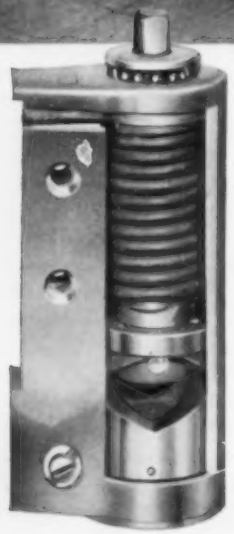

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by Ben John Small

spec small talk

broken crystal ball

I don't know what is going on in your neck of the woods regarding school costs, but see here! In my own little old metropolitan New York area, since early spring of 1955, school bids have been bouncing in, varying from 1% to 44% in excess of authorizations. The average excess in the group studied is about 19% for new elementary, junior, and senior high schools, additions to existing buildings and renovations. The over-runs are due principally to wage increases, granted and anticipated, increases in costs of materials (especially steel, cement, and copper), and generally higher bids on the part of subcontractors. Where will all this lead us? The architect is backed into a most uncomfortable position. Educators are faced with the knotty problem of cutting back building areas at the expense of the educational program, at a time when school housing is needed so desperately. I don't know what the answer is, other than for us to double our efforts in the direction of more economical solutions.

CRSI

Not too long ago, the Concrete Reinforcing Steel Institute developed a little booklet that told a story pictorially and pungently. In view of the rising cost of steel I found it especially timely and informative. If you saw it, don't bother reading on. For those who may have filed it in the rotary file without reading, cast your eyes on this 11-point summary:

"1. Study the framework of your building as a whole.

"2. Prepare freehand framing sketches, comparing various methods.

"3. Establish column centers to come in partitions, to clear door and window openings, and to provide economical framing. Spacings of from 14 to 15 feet up to 20 to 25 feet are recommended.

"4. Take rough preliminary sizes either from the *CRSI Design Handbook* or by that rule of thumb which suggests making beam depth one inch per foot of span and width one-half of that —increasing somewhat for unusually light loads.

"5. Prepare alternate sketches of any other practical ways of framing the same structure.

"6. Make quantity surveys and cost comparisons of all practicable schemes. This can be done quickly and roughly and still with a fair degree of accuracy.

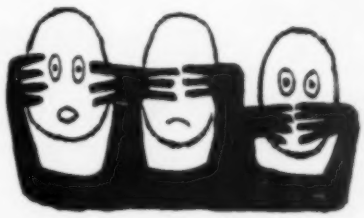
"7. Select that compromise which achieves the best balance between low cost of the building and minimum interference with desired facilities.

"8. Your preliminary framing sketches, made freehand on thin paper, can be printed and distributed to architects, mechanical engineers, and others to establish the general program and eliminate unnecessary changes on finished drawings.

"9. Have a sense of comparative values. A stair header has relatively little effect on the over-all cost, but a whole line of spandrel beams on many stories can become a large item.

"10. Plan your building and visualize how forms would be constructed. For economy, keep beams and columns simple, without haunches, brackets, widened ends or offsets.

"11. You can save in form construction by making the concrete structure sufficiently strong to permit stripping forms in a very short time so as to permit their re-use. Stripping is often permitted when concrete reaches 70% of the ultimate design strength."



rules for specifiers

I have been asked many times what makes a good specifications writer. The following is an enumeration of rules to follow, for up-and-coming specification writers.

1. When a building product manufacturer's representative visits with you, by all means do not give him an opportunity to speak his piece. Interrupt him to tell all you know about his product, especially the story you heard from a distant relative regarding the failure of his material.

2. Always rely on your superb memory and precious collection of outdated catalogs—never open Sweets'.

3. When in doubt in writing specifications, see how cleverly you can devise unclear, impressive language to disguise your ignorance.

4. Always use the standard *AIA General Conditions* without modifications, since these were prepared to cover magically every conceivable condition throughout the length and breadth of our country.

5. No use wasting time and money, always put off writing specifications until the last minute. In order to build up an impressively thick book, ask your secretary to copy the nearest trade association specification (which you must avoid reading, much less edit).

6. Always specify the same item of work in several sections, to make sure you get it.

7. When using ASTM or similar references, never use its particular specification number. No use burdening the contractor with too much information.

8. Never be unduly alarmed lest the specifications agree with the drawings; you could look at the drawings any time after they are out to bid, for happy coincidences.

9. Never admit a mistake! Hide behind previously prepared grandfather clauses.

10. When writing guarantee clauses, insist on your own pet method of executing the work.

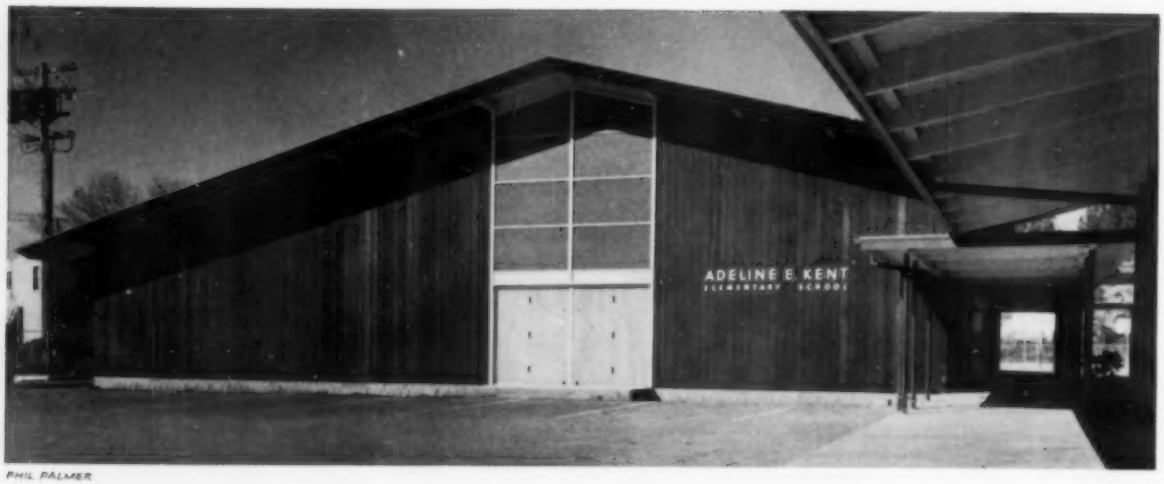
11. Insist upon a limited bidding period (Contractors wait until the last moment anyhow). Be sure to include at least 35 alternates (because Contractors just adore these interest-stimulating features).

12. Make sure you have a list of job openings handy. You may need it!

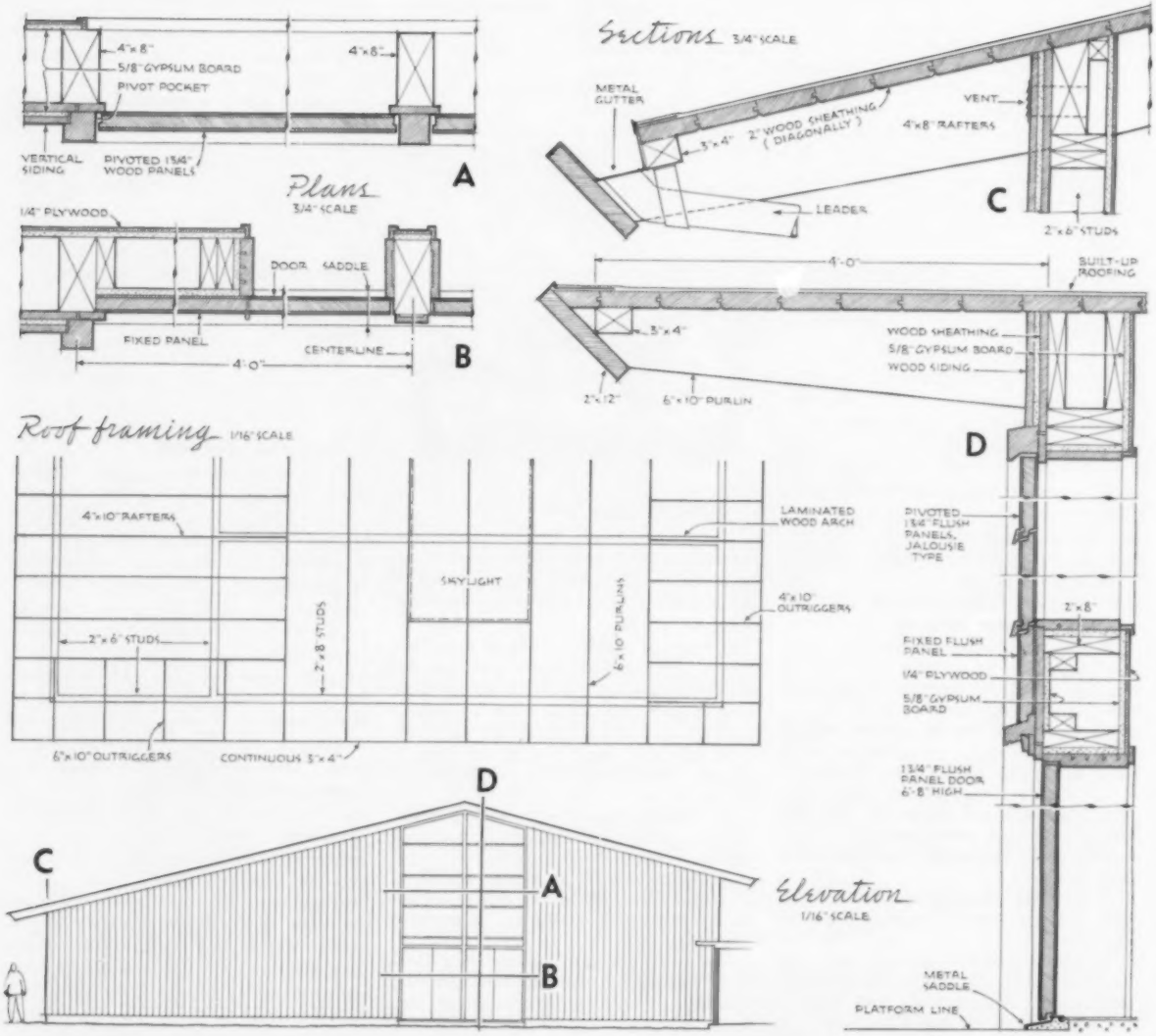
new code for lifts

Under the sponsorship of the National Bureau of Standards, the American Institute of Architects, and the American Society for Mechanical Engineers, 14 subcommittees with a total membership of 150 labored and brought forth a splendid buy at $3.50. I am referring to the *1955 Safety Code for Elevators, Dumbwaiters and Escalators* which is happily approved by the American Standards Association and published by the American Society of Mechanical Engineers. Now don't go away, gentlemen. This is really important! You know perfectly well all of us goof at one time or another in the design of elevators. I know of no other tome so neatly engineered to avoid pitfalls. It is not the kind of reading you take to bed with you, but sure is vital guidance to those concerned with safety in this field. Maybe in this day of specialization you are wont to toss this problem in someone else's lap. Even so, this is an important book to have around to check your specialist's special specialty. Now, ASME, may I have my free copy?

wall section



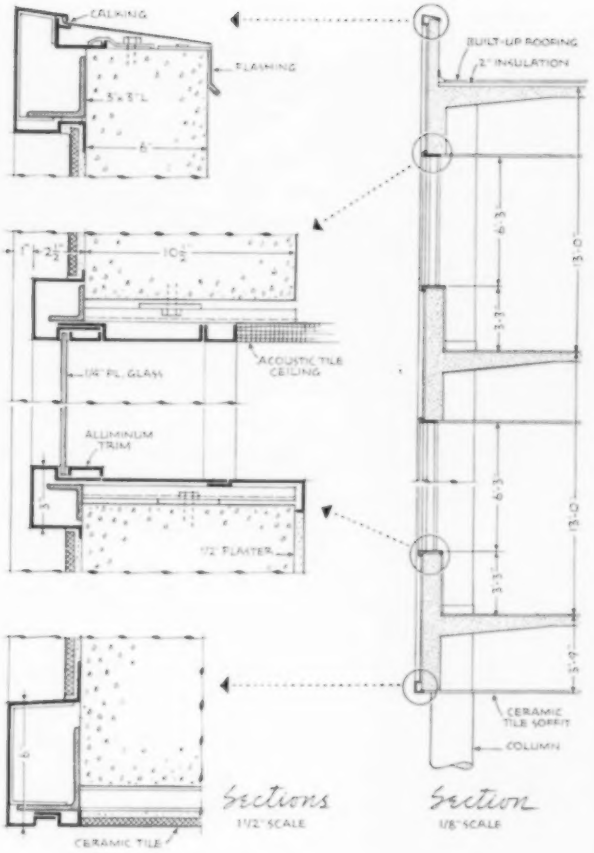
PHIL PALMER



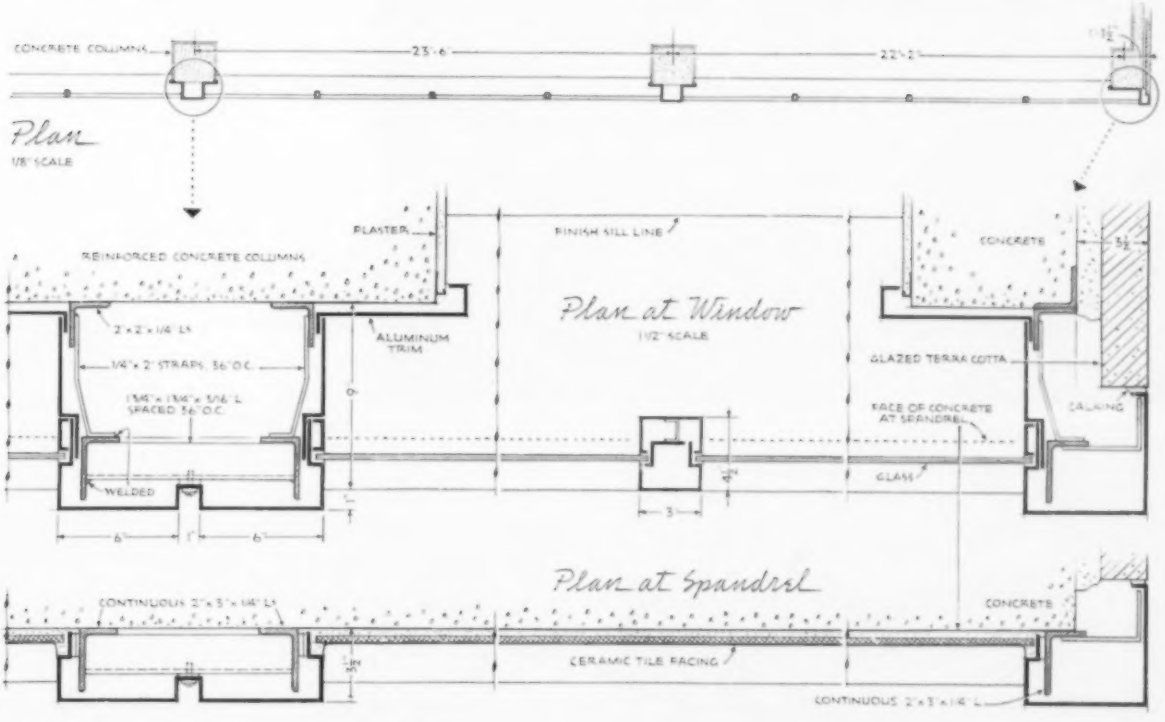
ELEMENTARY SCHOOL, Kentfield, Marin County, Calif.

Corlett & Spackman, Architects

wall section



JULIUS SHULMAN



POLICE HEADQUARTERS, Los Angeles, Calif.

Welton Becket & Associates and J. E. Stanton, Associated Architects

Architect—Allen N. Dryden, Kingsport, Tennessee

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multipurpose schoolrooms

Louise Sloane

As a space-saving and economical planning element, the multipurpose schoolroom has won wide popular use. The logical combination of auditorium with gymnasium and/or with cafeteria serves to provide multiple facilities in the most practical, least costly manner. We show five examples of elementary schools where thoughtful planning for the varied uses of the multiple room has accomplished successful results.

In the Lakeview Elementary School, executed for Mercer Island School District No. 400, Mercer Island, Washington, Architects Bassetti, Morse & Aitken designed a gymnasium/auditorium shaped like a musical horn, especially to produce excellent acoustics. The wood ceiling slopes steeply up toward the stage and acts as reflecting soundboard, while the sound-absorbing walls of Haydite block are splayed outward toward the rear of the room, with a sound-absorbing rear wall of perforated hardboard. Windows have been eliminated, since they would just have to be darkened for the audio-visual programs. Brilliant color (orange, yellow) accenting brown, tan and white surfaces, is in key with the lively activities for which the building is used.

Architects Daniel, Mann, Johnson & Mendenhall, for the Manhattan Beach City School District, Manhattan Beach, California, took advantage of the sloping characteristics of the site to create inside and outside assembly areas, with a stage in the middle, adding an amphitheater to the multipurpose cafeteria/assembly space. Vivid colors, selected on the basis of children's own color preferences, contribute gaiety and spirit to the interior.

For the Palm Springs Unified School District, Palm Springs, California, Architects Clark, Frey & Chambers combined cafeteria with assembly facilities, selecting materials especially suitable for both uses. Wall pockets to accommodate folding tables and benches, serving counters that may be closed off, narrow windows, shuttered and easily darkened, all serve to simplify the change from one room function to another.

Architects Ganster & Hennighausen incorporated three uses (auditorium/gymnasium/cafeteria) in the room designed for Board of Education, Cook County School District No. 68, Skokie, Illinois. The soundproofed ceiling is equally important for all three uses. The introduction of natural wood for the walls flanking the cafeteria, and for the coat-storage doors, adds warmth and contrast to other surface materials.

For the Town of Sharon, Connecticut, School Building Committee, Architects Sherwood, Mills & Smith created a combination auditorium/gymnasium that will also serve as a community meeting place for town meetings, dances, amateur plays. It is located convenient to nearby cafeteria and lunchroom facilities. Characteristic of the emphatic planning behind this design is the decision to provide storage for over 400 chairs on trucks in a large closet adjacent to the stage, rather than to raise the stage high enough for chair storage beneath, which would have resulted in a stage too high for best sight lines for children. Consideration for the client's needs is equally well expressed in the provision of wood blocks attached to side walls, spaced to permit easy attachment of 4′ x 8′ pieces of beaverboard for decorations painted by students or community groups.

multipurpose schoolrooms

area — auditorium/gymnasium

location — Lakeview Elementary School, Mercer Island, Washington

architects — Bassetti, Morse & Aitken

colors — Mary Bassetti and Emily Morse

Photos: Art Hupy

data

Design Theory: Multipurpose room for 600-pupil elementary school, also used for adult games and evening meetings. Simple shape contributes to good acoustics and extreme flexibility of use. Significant points are: splayed sound-absorbing sidewalls, paneled platform, sound-reflecting ceiling, highly absorbent rear wall, omission of a proscenium, retractable baskets, built-in projection booth, connecting warm-up kitchen. Windows or skylights would have been considered a nuisance—to darken for audio-visual programs.

Color Plan: Bright-orange ceiling, white trusses, light fixture reflectors; light-tan side and rear walls; yellow steel columns; dark-walnut-stain on platform plywood walls; medium-brown asphalt tile, except maple on platforms. Yellow walls and curtains in dressing rooms.

doors, partitions, windows

All Doors and Partitions: General Veneer Company, Los Angeles, Calif.
Windows in Dressing Rooms: Tecler/ Aluminum Products Co., 625 N. Yale St., Seattle, Wash.

equipment

Basketball Baskets: E. P. Finigan Co., San Francisco, Calif.

furniture

Folding Chairs: Virco Mfg. Co., 15134 So. Vermont Ave., Los Angeles, Calif.

lighting

Silver Bowl Diffusers: Smoot-Holman, Inglewood, Calif.

walls, ceiling, flooring

Walls: Graystone Haydite cement block/ Seattle, Wash.
Interior Finish on Platform: stained fir plywood on wood furring.
Interior Finish on Rear Wall: perforated hardboard/ "Hansonite" from Sweden.
Sidewalls: paint.
Ceiling: 2" fir plank/ oil paint.
Floors: concrete slab on grade; "Matico" asphalt tile/ Mastic Tile Corp. of America, N. Montgomery St., Newburgh, N.Y.

area	cafeteria/assembly space/amphitheater
location	Curtis Avenue Elementary School, Manhattan Beach, California
architects	Daniel, Mann, Johnson & Mendenhall
landscape architect	Eric Armstrong

data

Design Theory: Since building program could not support a large assembly cafeteria area, it was necessary to develop available space for dual use. Interiors were made to appear larger by maximum use of glass and at one end by 40'-wide sliding doors, which created a stage outside of the building. This was done by raising the concrete pad and extending the overhang to cover it. Because of the extreme sloping characteristics of the site, it was felt that the stage could also be utilized as an amphitheater at the opposite direction of the building. This created an assembly area—one inside and one outside, with a stage in the middle. By the general topography of the site, this became a cove and the stage can be used during evening functions, even in the cooler winter weather of the Southern California beach cities.

Color Plan: Color plan is based on the thesis that schools are created for children and not adults. The architects studied more than 2000 pictures drawn by the children of this District, in order to find out what colors children choose. This range was interpreted as the color scheme of the building. Ceiling is white with lemon-yellow concrete panels. Walls are dark red. Woods are white ash, with turquoise-green table tops. Plaster wall is white with red accent panels, turquoise-green wainscot. Floors are tan asphalt tile.

doors and windows

Steel sliding doors: Arcadia Metal Products Co., 801 S. Arcadia Ave., Fullerton, Calif.

Windows: stationary windows alternating with aluminum jalousie windows/

furniture

Folding Tables: "In-Wall"/ Scheiber Sales Co., Brightmoor Ste., Detroit 23, Mich.

lighting

Fixtures: concentric rings.

walls, ceiling, flooring

Wainscot: "Kallistron"/ U.S. Plywood Co., 55 W. 44 St., N.Y.C.

Walls: plaster, painted/ White Ash/ U.S. Plywood Co., 55 W. 44 St., New York, N. Y.

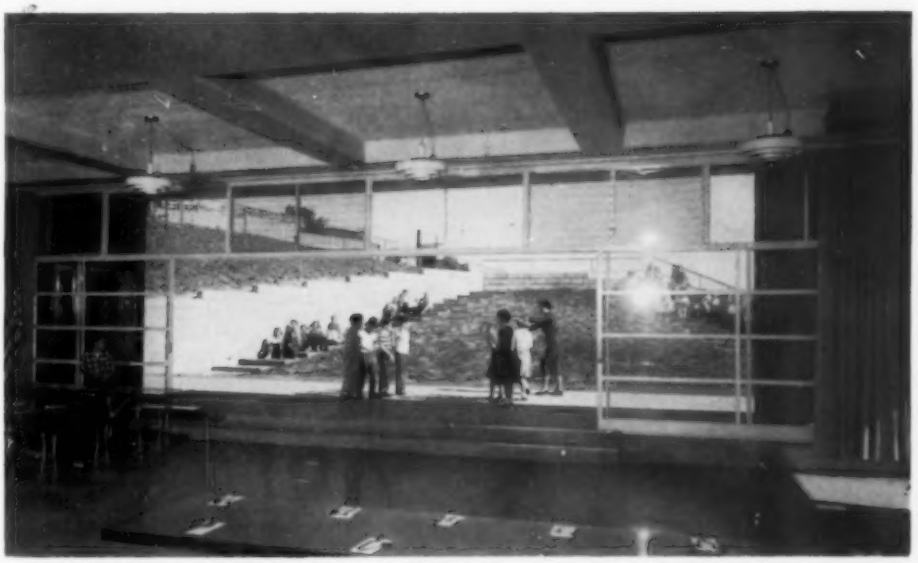
Ceiling: "Insulrok"/ used as form for lifting slab concrete on ground/ when raised into place, it became the acoustical finish for ceiling and was painted white for reflecting value/ Insulrock Corp., E. Linden Ave., Linden, N.J.

Floors: concrete; "Matico"/ asphalt tile covering/ Mastic Tile Corporation of America, No. Montgomery St., Newburgh, N.Y.

equipment

Tray Slides in Counter Tops: stainless steel.

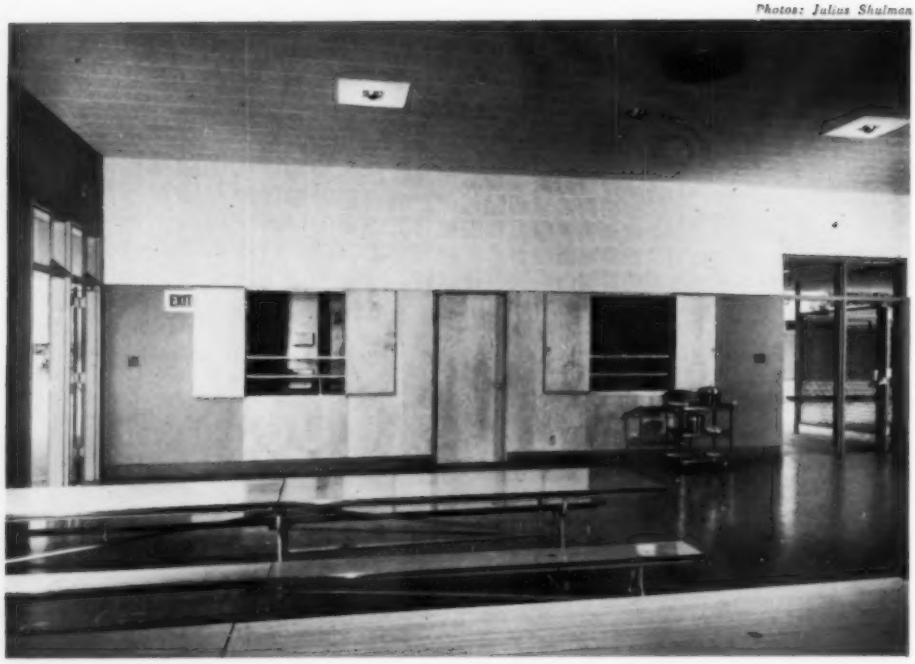
Aluminum Counter Door at Dish Return: The Cookson Co., 1539 Cortland Ave., San Francisco, Calif.



Photos: Olson-Spencer & Associates

multipurpose schoolrooms

Photos: Julius Shulman



data

Design Theory: Multipurpose room to be used as cafeteria/assembly room. Folding tables and benches, grease-proof asphalt-tile floor, serving counters connecting to kitchen for cafeteria use. For assembly use, tables and benches fold into wall pockets, serving counters are closed off, folding chairs are brought in (benches may be used for short programs, but are not comfortable for long periods of sitting). If slide or movie projection is desired, narrow windows between table pockets may be darkened by closing hinged wood shutters. Wide continuous steps to platform create friendly relationship between two areas. Folding tables may be removed from pockets and used on platform or in assembly room for banquets, conferences, etc.

Color Plan: Floor is medium gray, with light natural-finish birch paneling on walls, light wood-grained Formica surfaces on tables and benches to match birch walls. Plaster walls are painted light teal blue in assembly room, beige on platform. Ceiling and upper portion of rear wall are of white acoustical tile.

doors and windows

Doors: Krieger Sheet Metal & Fire Door Co., Los Angeles, Calif.

Windows: steel sash/ Ceco Steel Products Corp., 5601 W. 26 St., Chicago 50, Ill.

equipment

Dishwasher: Hobart Mfg. Co., Troy, Ohio.

furniture

Folding Tables: "Port-A-Fold"/ Schieber Sales Co., Brightmoor Station, Detroit 23, Mich.

lighting

Assembly Room: "Skylike"/ Smoot-Holman, Inglewood, Calif.

Platform Border Lights: Kliegl Bros., 321 W. 50 St., New York 19, N.Y.

walls, ceiling, flooring

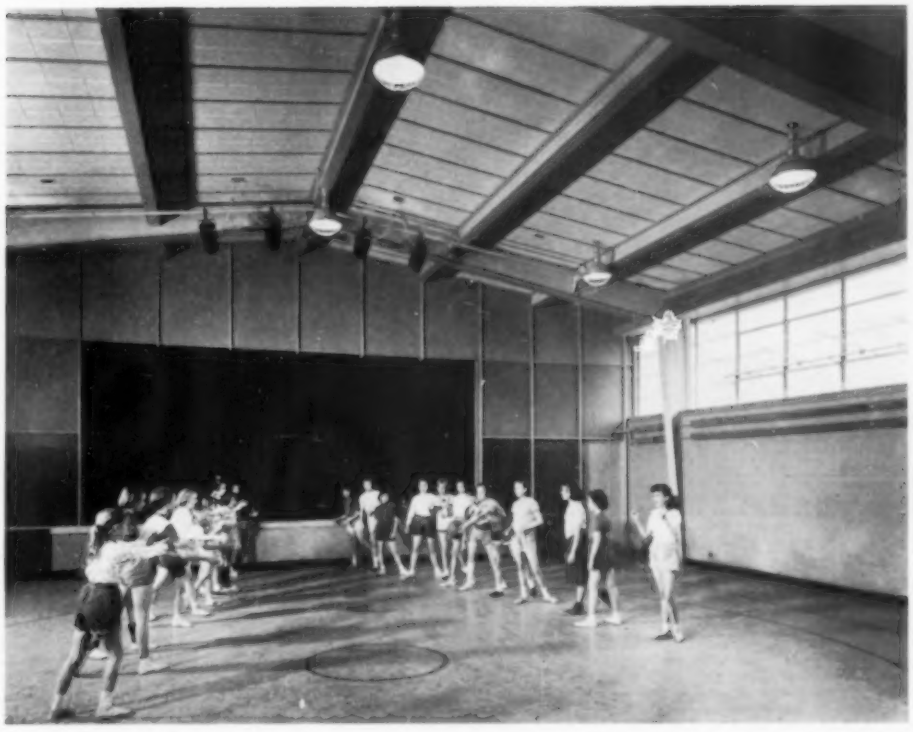
Walls: birch finish/ U.S. Plywood Co., 55 W. 44 St., New York 36, N.Y.

Floors: asphalt tile/ Moultile, Inc., Long Beach, Calif.

Ceiling: "Firtex"/ acoustical tile/ Dant & Russell, Portland, Ore.

area	auditorium/cafeteria
location	Cahuilla Elementary School, Palm Springs, California
architects	Clark, Frey & Chambers

Photos: Hedrich-Blessing



data

Design Theory: Triple purpose room has sound-proofed ceiling, floor inlaid with game lines. All furniture is portable. Cafeteria is at opposite end from stage. Caged, drop ceiling lights.

windows

Steel Sash: Crittall, Inc., Waukesha, Wis.

lighting

Fixtures: Sylvania Electric Products, Inc., 60 Boston St., Salem, Mass.

ceiling and flooring

Ceiling: "Auditone"/ U.S. Gypsum Co., 300 W. Adams St., Chicago 6, Ill.

Floors: asphalt tile/ Tile-Tex Div., The Flinkote Co., 1232 McKinley St., Chicago Heights, Ill.

area	**auditorium/gymnasium/cafeteria**
location	**Jane Stenson School, Skokie, Illinois**
architects	**Ganster & Hennighausen**

multipurpose schoolrooms

area — auditorium/gymnasium

location — Sharon Elementary School, Sharon, Connecticut

architects — Sherwood, Mills & Smith

Photos: Joseph W. Molitor

data

Design Theory: Simple, inexpensive enclosure for combination auditorium/gymnasium, which in general form might be reminiscent of Colonial buildings and old farmhouses and barns in immediate vicinity. Sloping gable form used to provide maximum height for basketball play in the center, with low height at side walls to keep the room in scale with small children. Structure, framing, and roof plank exposed. Room also serves for community activities. Ample storage provided by several sets of double doors on inner side wall for convenient disposal of chairs, equipment, etc., when not in active use.

Color Plan: Walls, light neutral gray-pink. Ceiling white. Steel bents are painted to match ceiling and walls, rather than emphasized. Proscenium, natural brick same as exterior. Stage curtain green, acoustical rear wall green to match and to furnish dark background for basketball. Natural-birch woodwork. Natural-cork tackboard. Red glazed-tile wainscot. Floor, gray mottled-vinyl tile, athletic games inlaid.

doors and windows

Doors and Adjacent Wainscot: natural birch/United States Plywood Corp., 55 W. 44 St., New York, N. Y.

Recessed Hardware: Schlage Lock Co., 2201 Bay Shore Blvd., San Francisco, Calif.

Windows and Window Frames: Hope's Windows, Inc., 84 Hopkins Ave., Jamestown, N. Y.

equipment

Nailing and Fastening Blocks: wood blocks permanently fastened to steel bents and to side walls for decorations.

Stage Curtain and Track: blue-green satin tweed, metallic-flecked/I. Weiss & Sons, 4915 W. 45 St., New York, N. Y.

Tackboard Between Rear Doors: Natural cork/Armstrong Cork Co., Lancaster, Pa.

lighting

Fluorescent Luminaire: The Miller Co., Meriden, Conn.

Plastic Skylights: "Wascolite Sky-domes"/provided with spring roller darkening shades/Wasco Products, Inc., 87 Fawcett St., Cambridge 38, Mass.

walls, ceiling, flooring

Front Wall: special variegated common brick.

Wainscoting: glazed tile/Marblox, Kenilworth, N. J.

Rear Wall: perforated "Transite"/Johns-Manville Corp., 22 E. 40 St., New York, N. Y.

Ceiling: concrete plank/Insulrock Corp., Linden, N. J.

Gymnasium Floor Underlayment: latex rubber/The Flintkote Co., 1232 McKinley Ave., Chicago Heights, Ill.

Inlaid Floor: vinyl asbestos tile/Kentile Inc., 58 Second Ave., Brooklyn 15, N.Y.

p/a interior design products

resilient flooring

Gymnasium: "Terraflex"/ vinyl-asbestos tile/ inlaid game lines/ Hamden High School, Conn./ **Johns-Manville Sales Corporation, 22 E. 40 St., New York 16, N.Y.**

Auditorium-Gymnasium: "Koroseal"/ tile in green/ basketball and volley ball courts with permanent boundary lines in 2" white feature strip/ for contrast, red molded-rubber cove base around room, black alongside stage/ St. Patrick's Center, South Hadley Falls, Mass./ **The B. F. Goodrich Company, Flooring Division, 36 Nicols Ave., Watertown 72, Mass.**

Gymnasium: "Flexachrome"/vinyl-asbestos tile/ inlaid game lines/ The Gunnery School, Washington, Conn./ Architects Sherwood, Mills & Smith/ **The Tile-Tex Division, The Flintkote Company, 1232 McKinley St., Chicago Heights, Ill.**

p/a interior design products

resilient flooring

Cafeteria: "Azphlex Vinylized Tile" contrasting color blocks of aqua and tan/ McCallum High School, Austin, Tex. Architects Page, Southerland & Page/ **Azrock Products Division, Uvalde Rock Asphalt Co., P.O. Box 531, San Antonio 6, Tex.**

Cafeteria: "Kentile"/asphalt tile/ color "Rouge Acajou"/ Hillsboro Township School, Somerset County, N.J./ **Kentile, Inc., 58 Second Ave., Brooklyn 15, N.Y.**

Kindergarten: rubber flooring/ custom-designed insets, clock and illustrated alphabet border/ St. John's of God Parish Kindergarten, Chicago, Ill./ **The Goodyear Tire & Rubber Company, 1144 E. Market St., Akron 16, Ohio.**

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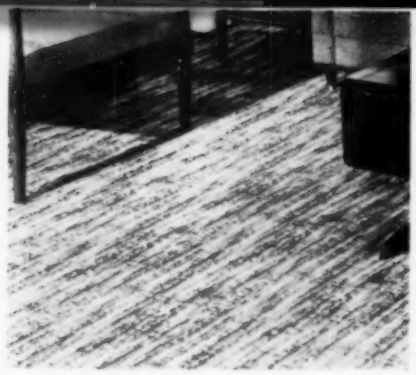
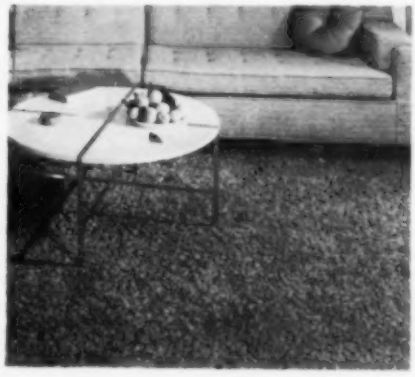
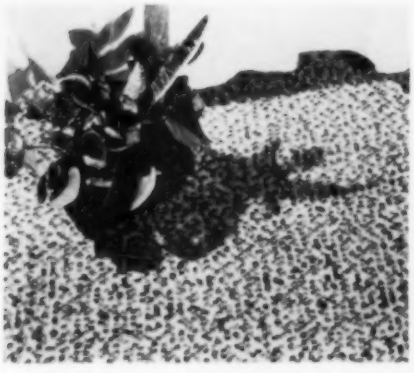


"Touraine"/ all-wool/ two level striated pattern with accenting cross-bars/ in Nutria, Sand Beige, Gray, Green/ 27", 9', 12', 15'/ **retail:** $11.95 sq yd/ **Alexander Smith, Inc., 295 Fifth Avenue, New York 16, N.Y.**

"Woolturf"/ all-wool/ deep shaggy pile/ both in multicolor and solid versions, 16 colors/ 27", 9', 12', 15'/ **retail:** $14.95 sq yd/ **Firth Carpet Co., 295 Fifth Ave., New York 16, N.Y.**

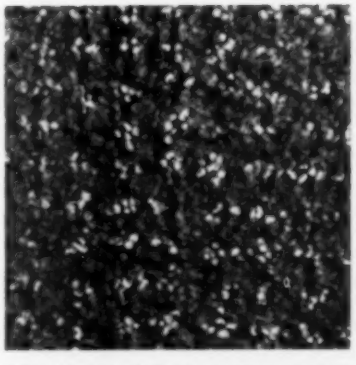


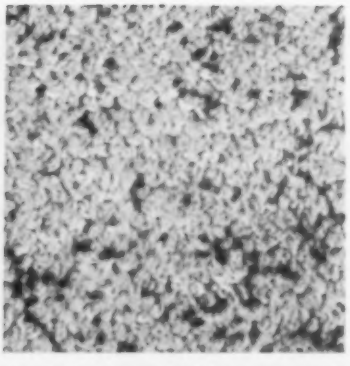
"Mayan"/ all-wool/ figured colors accented above textured ground pile surface/ in 12 three-color combinations/ 2'-3", 3', 9', 12', 15'/ **retail:** $31 sq yd/ **Nye-Wait Co., Inc., Auburn, N.Y.**



"Distinction"/ all-wool/ high-pile with textured surface/ in Turquoise, Beige, Nutmeg, Green, Gold, Gray, Aqua, Sand, Nutria, White/ 9', 12' 15'/ **retail:** $13.95 sq yd/ **A.&M. Karagheusian, 295 Fifth Ave., New York 16, N.Y.**

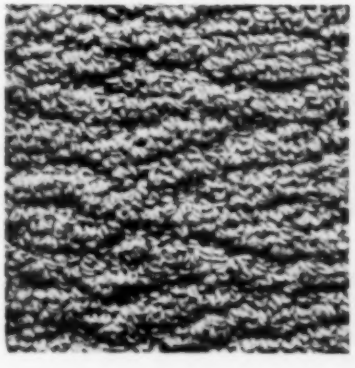
"Serenna"/ wool/ hard twist accents in dense soft twist pile/ in Pompeian Gold, Miramar Green, Pistachio Green, Venetian Aqua, Appian Stone, Santone Beige, Carara Brown, Tiber Gray/ 9', 12', 15', 27'/ **retail:** $16.95 sq yd/ **Archibald Holmes & Sons, Erie Ave. and K St., Philadelphia, Pa.**

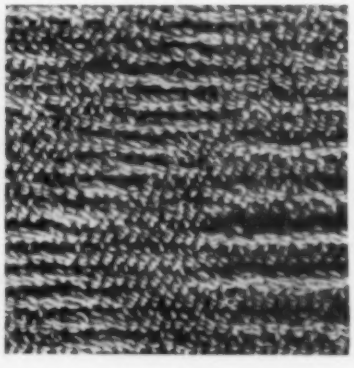




"Charcross" / wool/ plush pile flecked with charcoal/ in Persian Green, Sandalwood, Ivory, Aquamist, Dove Gray, Shell Beige/ 12' widths/ **retail:** $11.50 sq yd/ **James Lees & Sons Co., E. Fourth St., Bridgeport, Pa.**

"Ann Arbor"/ wool/ looped texture with modified twist/ in four solid colors, three tweed combinations/ **retail:** $9.50 sq yd/ **Sanford Carpets, 295 Fifth Ave., New York 16, N.Y.**





"Mark 90"/ wool face on jute back/ embossed velvet/ in four multitones, Rock Gray, Hampton Beige, Sutter Gold, Corsage Green/ **retail:** $12.95 sq yd/ **C. H. Masland & Sons, Carlisle, Pa.**

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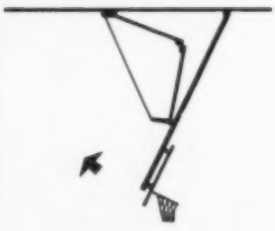

It contains detailed information on our complete line, Section 23K EA

E-Z-FOLD, Inc.

SPEARVILLE, KANSAS

ELECTRICALLY OPERATED BASKETBALL BACKSTOPS

IDD January Market

furniture highlights

High Cabinet: scaled to occupy minimum space/ sap-grain-walnut accordion-fold doors, case of natural-grain-walnut/ interior back, white lacquer/ cabinet locks in place on 7" solid-walnut back support, is further supported by toggle bolts to make a semi-cantilevered installation/ 51" wide x 14" deep x 76" high/ **retail:** $866/ designed by Edward J. Wormley/ **Dunbar Furniture Corporation of Indiana, Berne, Ind.**

Desk: tambour roll-top/ concealed drawer fitted for office equipment/ leather writing surface, typewriter space/ in teakwood with rubbed-linseed-oil finish on cantilever and arch base of solid brass or stainless steel/ **retail:** $1260/ designed by Vladimir Kagan/ **Kagan-Dreyfuss, Inc., 125 E. 57 St., New York, N.Y.**

"Quick Change" Seating: low armchair and two-seater with snap-on foam-rubber cushions, zippered for change or cleaning of fabric/ Danish-designed fabric-encased springs/ frame in birch or walnut/ armchair 26"x30"x 29"/ **retail:** $98 in birch, $110 in walnut/ two seater 50" x 30" x 29"/ **retail:** $186 in birch, $210 in walnut/ **Jens Risom Design, Inc., 49 E. 53 St., New York 22, N.Y.**

Bed: slim box spring, 6" foam-rubber mattress/ new low height/ upholstered headboard with hinge for tilting/ 77"x38"x15½", headboard height 29 5/16"/ **retail:** $228/ designed by Richard Schultz/ **Knoll Associates, Inc., 575 Madison Avenue, New York 22, N.Y.**

Chairs: for dining or conference use/ in solid walnut or birch, with foam-rubber back and seat cushions/ armchair 22½" x 23" x 30"/ **retail:** $138/ sidechair 22½" x 21" x 30"/ **retail:** $122/ designed by George Nelson/ **Herman Miller Furniture Co., Zeeland, Mich.**

New Pittco NO. 84 Awning Hood

This new hood gives complete protection to the awning and awning fixtures. The outer face, modern and unusual in design, creates a smart and pleasing accent at the head of the opening. It is beautifully finished like all Pittco mouldings. For complete details, see your Pittco Store Front Metal Representative.

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

Movable Wardrobe: lightweight wardrobe on full-swivel caster attachments, for storage of students clothing/ may be used as schoolroom divided or turned open side to wall for use as bulletin board on corkboard back panel/ wardrobe provides storage space for 24 coats on fixed hangers and hooks mounted on adjustable bar-and-rack/ full-length wire rack provides for lunch storage above overshoe storage space/ cabinet structural members of honeycomb construction/ color is sage gray/ where hardware is required, metal meets metal/ 21 7/8" x 47 1/2" x 54 1/2" on casters/ also available with full-length metal base or island base/ **Brunswick-Balke-Collender Co., 623 S. Wabash Ave., Chicago 5, Ill.**

Louvered-Door Storage Cabinets: "Bilt-Well" units 24-B2 and 48-B2/ for wardrobe and storage use/ shelves or drawers may be added for flat storage, at top or bottom/ 24-B2 is 24" wide, with single louvered door/ 48-B2 is 48" wide, with two louvered doors/ cabinets may be used in combinations to take the place of nonloadbearing walls between rooms/ clear kiln-dried Ponderosa Pine with hardboard back panel/ shipped semiassembled/ **Carr, Adams & Collier Co., Dubuque, Iowa.**

Planked Plywood: simulated planking in plywood panels achieved by rolling in grooves under heat and pressure/ grooves are on 16" centers, give appearance of random widths/ smooth channels hide nails, do not catch dust/ Malarkey plywoods/ **M and M Woodworking Company, 2301 N. Columbia Blvd., Portland, Ore.**

New Ceramic-Tile Color: "Bluegrass Green Quarry Tile"/ color completely permeates tile, neither fades nor wears off/ useable for floors bearing heavy traffic/ **The Mosaic Tile Company, Pershing Rd., Zanesville, Ohio.**

All-Purpose Paint: vinyl plastic, one-coat, for interior and exterior applications/ "Seal-Kote"/ may be applied on either wet or dry surfaces/ washable/ dirt and acid resistant/ for use on cement and cinder blocks, concrete, brick, wood, plaster, wallboard, celotex, stucco, or over wallpaper/ prevents water penetration, releases internal moisture/ **The Wooster Sealkote Company, Wooster, Ohio.**

Cork-Tile Finish: "SG" supergloss/ greater ease of maintenance, higher resistance to spotting/ water-repellent/ recommended for foyers, kitchens, bathrooms/ available on cork tile in standard thicknesses of 1/8", 3/16", 5/16", and on "Pioneer Plank," "Narrowstripe Parquetry," "Broadstripe Parquetry," and "Dalmatian" designs/ **Dodge Cork Company, Inc., Monroe and Laurel Sts., Lancaster, Pa.**

New Granite Color: "Charcoal Black"/ black with small white flecks, from a new granite vein/ approximately 20% less in cost than other black granites/ **Cold Spring Granite Co., Cold Spring, Minn.**

Kaleidoscopic Laminated Plastic: "Milano"/ pattern developed through new production technique/ marble-like look/ nonrepetitive pattern/ in three basic colors of gray, Antique, and pink/ designed by Raymond Loewy Associates/ **The Formica Company, 4620 Spring Grove Ave., Cincinnati 32, Ohio.**

Vinyl or Rubber "Ceramatile": resilient tile in designs of ceramic tile/ 1/8" gage homogeneous vinyl or rubber may be installed over almost any existing floor, requires no concrete subflooring/ colors will not wear off/ in pieces approximately 9"x9"/ in wide range of colors and white/ in variety of designs, including hexagons, octagons, herringbone, chevron, brick, random ashler/ joint compound that makes seams watertight furnished in harmonizing colors/ **Robbins Floor Products, Inc., Tuscumbia, Ala.**

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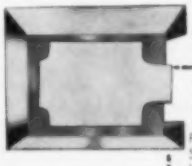

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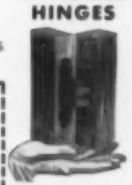

Soss Lev-R-Latch is made by the manufacturers of the "Hinge that hides itself," the Soss Invisible Hinge

p/a manufacturers' literature

Modern Sheet Copper Practices, *a comprehensive—and handsome—guide on correct uses for sheet copper, has been prepared by The American Brass Company especially for architects, engineers, and specification writers. The spiral-bound notebook contains a series of 52 full-page color plates, illustrating recommended detailing for roofing, flashing, expansion joints, gutters, through-wall flashing, and domes* (shown at left); *in addition, each plate is accompanied by suggested specifications as well as notes on expansion and contraction factors, temper, and gage of copper sheeting. General specifications are included at the front of the book.*

Copies of Modern Sheet Copper Practices, 116 pp., are available from The American Brass Co., Waterbury 20, Conn. L.C.

Editor's Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.

air and temperature control

126. Acme Flow-Therm Liquid Chillers (220-B), 16-p.

127. Acme Dry-Ex Liquid Chillers (600-A), 16-p.

Two brochures on liquid chillers for air-conditioning and industrial liquid-cooling applications. First booklet explains operation of packaged chillers, which include compressor, motor, condenser, heat exchanger, and all necessary controls; provides mechanical specifications, dimensions, and engineering-data tables. Second booklet describes direct-expansion chiller, available with plain tubing or tubing with star-shaped insert for increased efficiency; gives selection data, specifications, and construction details for chillers with either type of tubing. Acme Industries, Inc., Jackson, Mich.

128. Amervent Air-Conditioning Unit (625-S1), 12-p. bulletin presenting information on heating, cooling, and ventilating unit developed especially for schools in mild climates. Describes operation of three different models; explains low-cost method of air-conditioning school buildings by pumping in cool air at night. Also provides selection data, capacity tables, and dimensions; photos; specifications. Herman Nelson Products, American Air Filter Co., Inc., Louisville, Ky.

129. Sprayed-Coil Dehumidifiers (7827-H), 20-p. catalog containing data on central-station sprayed-coil dehumidifier. Describes construction of unit which cools, cleans, humidifies, and dehumidifies air; outlines procedure for selection of proper-sized unit. Engineering-data tables and dimensions; specifications; photos. American Blower Corp., Detroit 32, Mich.

130. Paraprobe Oil-Leak Detection System (80), 8-p. pamphlet explaining automatic system for detecting oil leakage into condensate of steam-type fuel-oil heaters. Describes three main elements of system—condensate-inspection tank, detector, and high-sensitivity relay; provides schematic wiring and piping diagrams. Photos; specifications. Davis Engineering Corp., 1060 E. Grand St., Elizabeth 4, N. J.

131. Kosmak Prefab Fireplaces, AIA 30-B-3, three folders showing freestanding fireplaces constructed of heavy-gage steel with black-graphite finish. Presents photos of several different models; describes construction and performance of each unit; provides dimensions. Kosmak Fireplaces, 45 Castle St., San Francisco 11, Calif.

132. Electronic Control of Heating and Air Conditioning, AIA 30-E (SA-2681), 16-p pamphlet outlining advantages of electronic controls for air-conditioning systems. Explains importance of central-control panel; describes sequence operation of heating or cooling equipment; discusses value of automatic leveling thermostat to compensate for fluctuations in temperature. Photos and diagrams. Commercial Div., Minneapolis-Honeywell Regulator Co., 2753 Fourth Ave., S., Minneapolis 8, Minn.

construction

241. Curing and Protection for Better Concrete, AIA 4-C-2 (CP-3), 4-p. folder discussing need for proper curing of concrete. Describes several methods of curing—with membrane materials, sand, ponding, or sprinkling; compares effects of each method on finished concrete. Photos; charts; architectural specifications. American Sisalkraft Corp., Attleboro, Mass.

242. Architectural Woodwork: Plywood Paneling, AIA 19-E-6 (7), 8-p. bulletin containing information on hardwood-veneer plywood paneling. Outlines advantages of plywood for interior-wall panels; describes characteristics of veneer-core and 5-ply lumber-core plywoods. Also includes suggested specifications for both custom-built and stock plywood panels; provides typical construction details. Architectural Woodwork Inst., 332 S. Michigan Ave., Chicago 4, Ill.

243. Universal Beneform Damper, AIA 14-E (C-108), 6-p. pamphlet describing damper designed especially for contemporary fireplaces with openings on more than one side. Lists special features of prefab damper, which includes heavy-steel throat form and structural lintel flange; provides drawings showing use of damper in all types of fireplaces. Charts of recommended hearth sizes and opening heights; mason's instructions. Bennett-Ireland, Inc., 11 Exchange St., Norwich, N. Y.

244. Architectural Porcelain Enamel, AIA, 15-M-1, file folder enclosing brochures and detail sheets on porcelain-enamel panels for curtain-wall construction. Features details showing back-up construction and fastening devices for panels with glass-fiber, plywood, and honeycomb cores; also provides drawings of copings, spandrels, sills, and louvered panels. Includes reprint of two articles from P/A—"New Developments in Porcelain Enamel" by Robert Weaver and "Porcelain Enamel in Contemporary Architecture," by Carl Koch. Dept. APE, Bettinger Corp., Waltham, Mass.

245. Liquid Integral Compound, 6-p. pamphlet on liquid additive for portland-cement mixes, which accelerates hydration. Describes properties of compound; gives recommendations for use in concrete and mortar. Time-of-set table; chart of com-

pression-test results. Concor Chemical Co., P. O. Box 846, Hoboken, N. J.

246. Porcelpanels for School Construction, AIA 15-H-2 (300).

247. Porcelpanels in Office Building, AIA 15-H-2 (200).

★ Two file folders containing detail sheets of porcelain-enameled curtain walls. First folder encloses details showing four basic types of curtain-wall panels as used in four contemporary schools; includes photos and technical data on each installation. Second folder contains large detail sheet showing porcelain-enameled curtain wall used in Ford Central-Staff Office Building, Dearborn, Mich.; also provides photos, technical data, and specifications. Ingram-Richardson Mfg. Co., Beaver Falls, Pa.

248. Mearlcrete System, AIA 4 (F.C. 408), 4-p. folder explaining method for producing lightweight concrete in densities from 20-120 lb per cu ft. Describes equipment for making foamed liquid which is mixed with concrete; gives instructions for placing of concrete mix by pumping or pouring. Charts on compressive strength and costs. Mearl Mfg. Corp., 153 Waverly Pl., New York 14, N. Y.

249. Mills Movable Metals Walls, AIA 35-H-6 (56), 68-p. catalog on steel interior partitions. Outlines advantages of movable walls; describes construction of three types of partitions. Presents photos, details, and specifications for 3" flush-pilaster partition, 2¾" economy wall, and commercial-type partitions; also includes data on accessories. The Mills Co., 965 Wayside Rd., Cleveland 10, Ohio.

250. Modern Wood School, 24-p. brochure containing photos of many noteworthy contemporary schools constructed of wood. Describes advantages in durability, ease of maintenance, and flexibility of wood; presents data on comparison of costs between wood and other types of construction. National Lumber Mfrs. Assn., 1319 18 St., N. W., Washintgon 6, D. C.

251. Reinforced Built-Up Roofs, AIA 12-B-1 (RW6.A5), 32-p. booklet describing use of porous glass-fiber mats for reinforcing bitumen on built-up roofs. Presents general requirements for preparation of roof surface and materials prior to application; gives detailed specifications for reinforced-asphalt roofing on steel, wood, and concrete surfaces. Also contains specifications for coal-tar pitch roofs, flashing, and insulation. Drawings; selection tables. General Products Div., Owens-Corning Fiberglas Corp., Toledo 1, Ohio.

252. Rilco Arches, Beams, and Trusses, AIA 19-B-3, 24-p. catalog on glue-laminated-wood and solid-timber structural shapes. Features chart for checking beam sizes, which shows finished size of sections for simple spans limited by bending stress only. Photos and drawings illustrate each structural shape; tables provide design data; details show arch connections. Specifications. Rilco Laminated Products, Inc., W-2591 First National Bank Bldg., St. Paul 1, Minn.

253. Gypsum Plasters and Finishing Limes, AIA 21-A-2, 16-p. booklet containing technical data on exterior stucco, interior base-coat plasters, and finishing plasters. Describes ingredients of several, packaged plaster mixes; suggests applications for each one; lists limitations of materials. Includes information on fire tests and compressive and tensile strengths; complete plastering specifications. U. S. Gypsum Co., 300 W. Adams St., Chicago 6, Ill.

doors and windows

329. Fenestration of Centrally Air-Conditioned Homes, AIA F-30 (558), 4-p. folder explaining importance of windows in air-conditioned homes. Suggests several means of shading windows to eliminate direct sunlight; recommends proper orientation of window areas to cut-down solar-heat gain. Also discusses operating windows, double glazing, and heat gain through windows by conduction. Drawings. Andersen Corp., Bayport, Minn.

330. Bayley Aluminum Windows, AIA 16-E (BAPW56), 28-p. pamphlet on aluminum-framed projected windows. Drawings describe construction of window frames; details show single, multiple, and curtain-wall installations. Photos; dimensions; specifications. The William Bayley Co., 1200 Warder St., Springfield 99, Ohio.

331. Fabrow Window Walls, 4-p. circular on modular window walls designed especially for insulating glass. Gives elevations and dimensions for six different size groups; provides photos of several installations. Fabrow Mfg. Inc., 7208 Douglas Rd., Toledo, Ohio.

332. Glamour Aluminum Sliding-Glass Doors, AIA 16-E, 8-p. circular presenting information on aluminum-framed sliding-glass doors. Isometric drawings illustrate features of construction; details show installation of doors in concrete-block, frame, brick, and brick-veneer construction. Specifications; dimensions. Glamour Glass Wall-Dor Corp., 4723 N. Pulaski Rd., Chicago 30, Ill.

★ **333. Miller Sliding-Glass Doors,** AIA 16-E (117), 8-p. catalog illustrating aluminum- and steel-framed sliding-glass doors. Details, arranged to compare advantages of aluminum vs. steel, show head, jamb, and threshold sections; ¼-size details, laid out for convenient tracing, show installation in frame-stucco, concrete-block, and brick-veneer construction. Photos; specifications; dimensions. Frank B. Miller Mfg. Co., Inc., 3126 Valhalla Drive, Burbank, Calif.

Stanley Hinge Selector, architects' slide rule for selecting door hinges. Charts give data on estimated frequency of door operation and other factors influencing selection of hinges; slide-rule selector gives catalog numbers of hinges for doors with kalamein, steel, iron, or wood jambs. Available only on direct application to Hardware Div., The Stanley Works, New Britain, Conn.

electrical equipment, lighting

418. Smithcraft Architectural Troffers (430C), 36-p. booklet featuring improved troffer-type lighting fixtures. Details show installation of troffer fixtures in several types of ceiling construction; drawings and charts contain data on fixtures in 1′ or 2′ widths. Also provides description of louvered, glass, and plastic diffusers. Photos; specifications. Smithcraft Lighting Div., Chelsea 50, Mass.

419. Electric Service Equipment, 32-p. catalog on electrical equipment for residential and commercial buildings. Tabulates ratings and dimensions for fuse panels, service-entrance equipment, and safety switches; also gives data on lighting panelboards as well as distribution panelboards. Chart of electrical symbols; tables of wire sizes and conduit capacities; formulas commonly used in electrical design. American Electric Switch Div., Clark Controller Co., 1146 E. 152 St., Cleveland 10, Ohio.

420. Light-Warden Emergency Lighting Units (10), 8-p. publication containing information on equipment designed to provide instant, automatic, emergency lighting whenever regular power source fails. Describes operation of several units, each with automatically charging batteries; also provides data on lamps for emergency

(Continued on page 168)

PROGRESSIVE ARCHITECTURE, 430 Park Avenue, New York 22, N. Y. I should like a copy of each piece of Manufacturers' Literature circled. We request students to send their inquiries directly to the manufacturers.

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242	252	421	
243	253	422	

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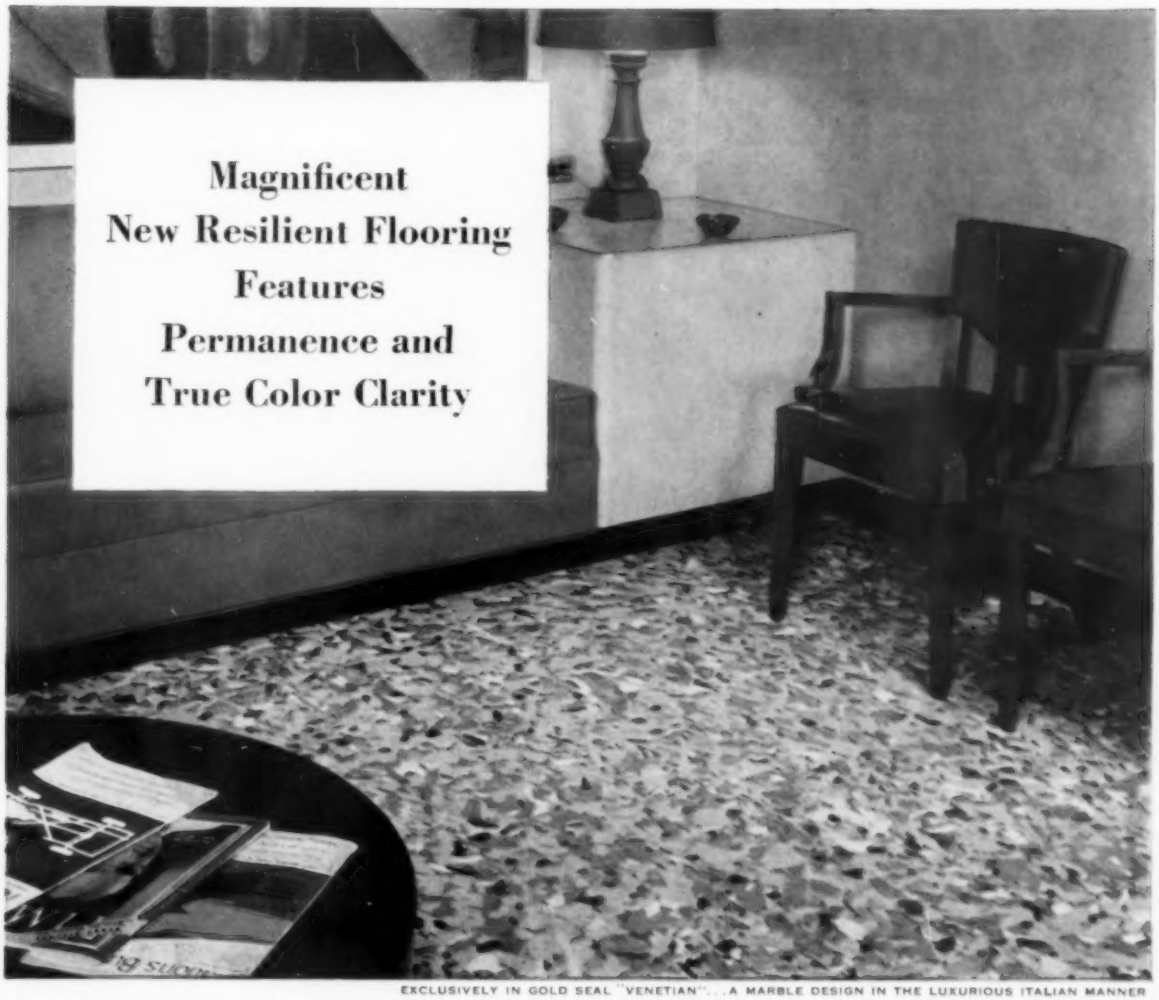

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"Nairon" Custom Venetian is a remarkably beautiful resilient tile flooring for modern business interiors and luxury homes. Colors in these ⅛" homogenous plastic tiles are maintained in full value through the entire thickness. The tiles are reminiscent of the memorable floors in the world's architectural gems.

Highly resistant to abrasion and the weight of heavy loads, "Nairon" Custom Tile is both flexible and tough. A superior plastic product, it is grease, oil and chemical resistant—a "natural" in heavy traffic areas where beauty and styling must appear. The design lends itself to use with brass, copper or stainless steel feature strips. Write to Architect's Service Department, Congoleum-Nairn Inc., Kearny, N. J. for information and samples.

SPECIFICATIONS: Install over on-grade concrete, suspended wood or suspended concrete.

"Venetian"—5 colors—⅛"
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All ⅛" tile available in 9"x 9", 12" x 12" and 18" x 18".
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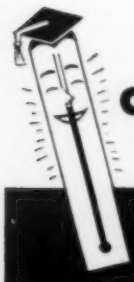
CONGOLEUM-NAIRN Inc., Kearny, N. J. Copr. 1956



COOLITE GLASS GETS ITS COLLEGE DEGREES

Architects	Mitchell & Ritchey
General Contractor	George H. Chilli
Glazing Contractor	Pittsburgh Plate Glass Company

Solar Heat and Glare Held to Minimum by Mississippi Glass in University Dormitory

Donner Hall, Carnegie Institute of Technology's new men's dormitory will be bright with daylighting without the unnecessary discomfort of excess solar heat. In keeping with modern architectural trends, this outstanding structure will feature extensive use of large areas of ¼" Mississippi Coolite, Heat Absorbing, Glare Reducing glass in both front and rear elevations. Under this excellent arrangement all rooms will be flooded with copious quantities of softly diffused, glare reduced daylight for maximum seeing comfort. The rooms will seem larger, more restful, more cheerful.

With its cool, blue color, translucent, light diffusing Coolite glass compliments the modern design of the building, and Coolite will help keep interior temperatures comfortable by absorbing up to 50% of solar heat rays. Students will see better, feel better, work better in the atmosphere created by Coolite-conditioned natural lighting.

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Mississippi constantly tests daylighting applications of its glass in a schoolroom erected on factory grounds. Results of these tests and assistance of Mississippi technicians are available to you upon request without charge.

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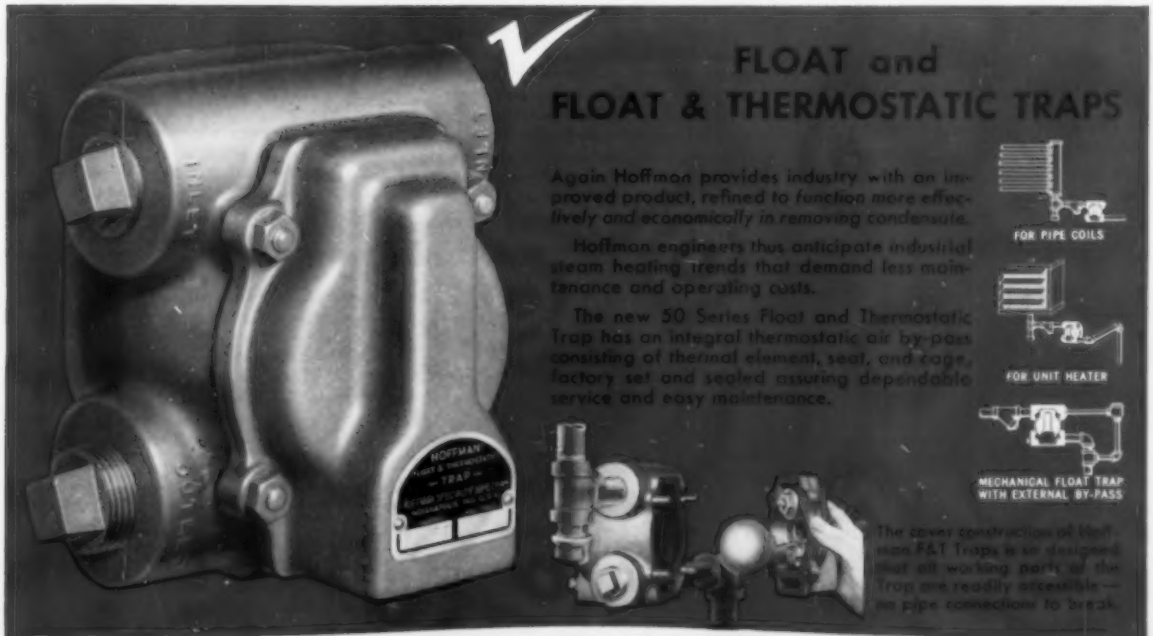

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Hoffman engineers thus anticipate industrial steam heating trends that demand less maintenance and operating costs.

The new 50 Series Float and Thermostatic Trap has an integral thermostatic air by-pass consisting of thermal element, seat, and cage, factory set and sealed assuring dependable service and easy maintenance.

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p/a manufacturers' literature

(Continued from page 163)

lighting. Photos; specifications. Electric Cord Co., 195 William St., New York 38, N. Y.

421. Modern Distribution Equipment for Commercial Buildings (GEA-6223), 24-p.

422. Power Distribution Planning Guide (GEA-6344), 20-p.

Two booklets especially prepared to cover latest data on high-voltage (420-480 v) electrical-distribution systems. First bulletin describes high-voltage system, explains functions of components, and gives recommendations for selecting equipment; provides equipment ratings and specifications. Second bulletin describes high-voltage system applied to typical commercial building; analyzes advantages of system and savings in cost. Includes charts, drawings, and photos of equipment. General Electric Co., Section 680, Schenectady 5, N. Y.

another *New* HAWS FOUNTAIN!

a product of modern styling

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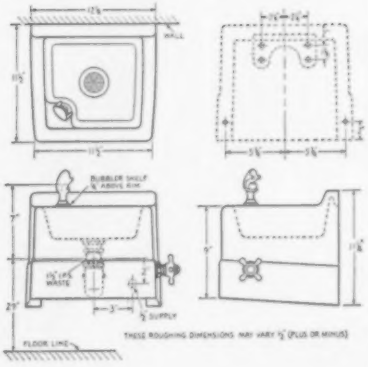
Acid resisting enamel cast iron drinking fountain

***Designed by* CHANNING WALLACE GILSON**
Industrial Designer

FOR PERFECT ADAPTATION to current architectural trends . . . and constructed of durable acid-resisting enameled cast iron to withstand the severest abuses of the school yard, this new HAWS drinking fountain assures lasting trouble-free service.

HAWS Model No. 7X drinking fountain contains HAWS *complete sanitation* features . . . with raised, shielded, angle-stream fountain head of chromium plated brass. Water pressure and volume is automatically controlled . . . it's anti-squirt!



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423. Roto-Glo Switches (2874), 4-p. folder showing noiseless, knob-type electrical switches. Describes construction of Despard-type and strap-type switches for rating of 15 amp (120-v ac); also gives photos, drawings, and dimensions. Pass & Seymour, Inc., Syracuse 9, N. Y.

finishers, protectors

506. Plastispray Sheeting, AIA 24-B, 4-p. circular containing data on sprayed-on vinyl-plastic coating for protection of interior and exterior wall surfaces. Outlines properties of material, ranging in thickness from 1/100" to 1/16"; also shows coating used as glass-spandrel back-up, vapor barrier, and swimming-pool lining. Photos; specifications. Liquid Plastics Corp., 50-02 23 St., Long Island City 1, N. Y.

507. Paint Specification Guide, AIA 25 (A18-56), 12-p. guide compiled to help architects and interior designers prepare better painting specifications. Gives recommended form for general specifications; provides detailed painting specifications for first and finish coats of paints, stains, or varnishes. Chart lists types of surfaces, construction, and recommended finishes; product-description data outlines characteristics and coverage of materials. The Martin-Senour Co., 2520 S. Quarry St., Chicago 8, Ill.

specialized equipment

814. Behr Bulletin Boards, 12-p. publication on directory boards, bulletin boards, and chalkboards. Shows portable and fixed chalkboards manufactured of compressed, wood-fiber hardboard; illustrates corkboards in portable, fixed, or cabinet-type frames; includes line of directory boards with movable letters. Provides description and dimensions for each product. Herman G. Behr Co., 11426 Schaefer, Detroit 27, Mich.

815. Planning Manual for Educational Science Laboratories, AIA 35-E (5A), 48-p.

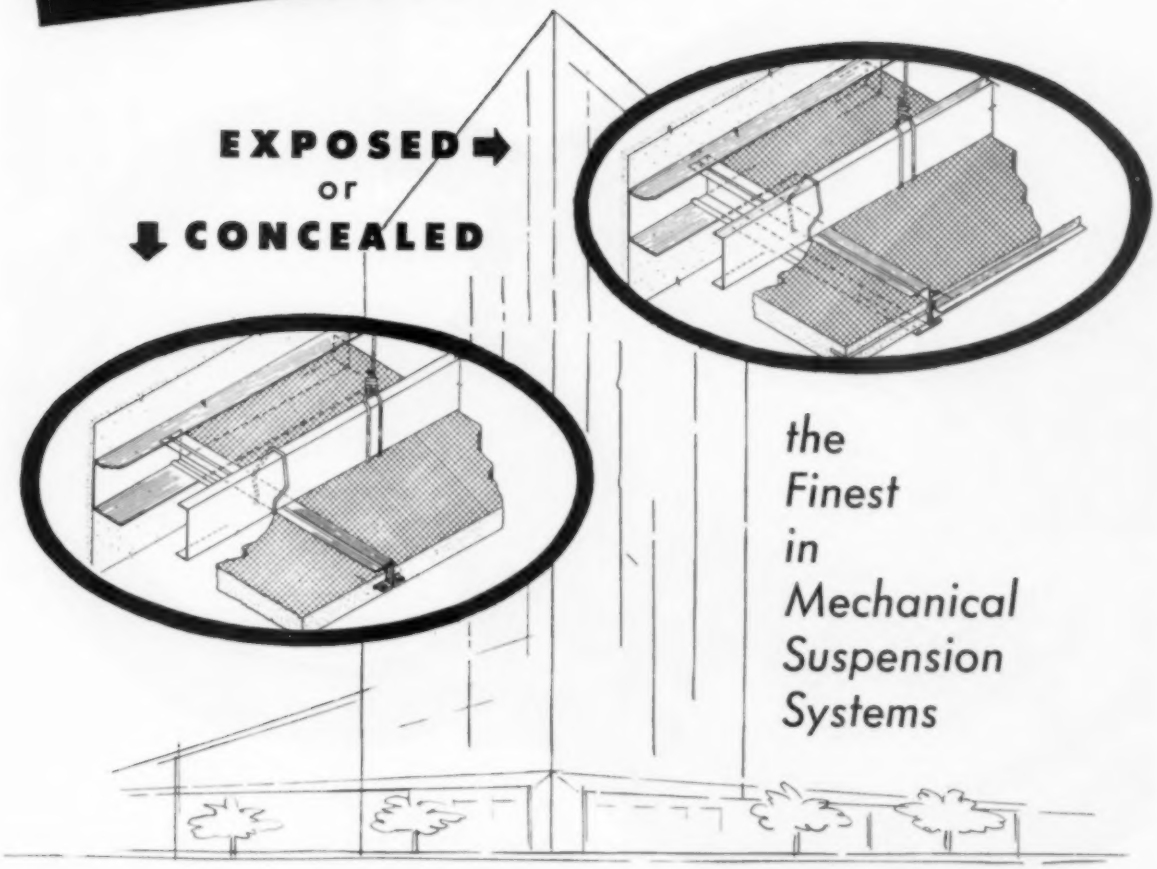
816. Educational Laboratory Equipment, AIA 35-E (5), 44-p.

Two booklets on planning of science laboratories for secondary schools and junior colleges. First manual analyzes activities conducted in science rooms and presents suggested layouts for laboratories; gives perspective drawings and floor plans for each layout. Second manual contains information on equipment used in laboratories; provides drawings, description, and dimensions for science tables, chairs, storage units, and specialized equipment. Kewanee Mfg. Co., Adrian, Mich.

interior furnishings

44. Drawer-Kit and Frame-Kit, 6-p. circular on precut, wood drawers and frames. Shows simple assembly of drawers; illustrates erection of frame units to fit all popular drawer sizes. Additional drawings suggest many ways drawer and frame units may be used. Firpine Products Co., P. O. Box 546, Oswego, Ore.

Securitee Line



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Bakersfield High School
Architects: C. B. Alford & W. J. Thomas
Bakersfield, California

When it comes to gymnasium seating MOST schools specify WAYNE

Sound engineering counsel during gymnasium planning solves many problems before they happen . . . saves money too! It's the sound way to integrate your building team. Here are three seating check-points to consider early in the planning stage:

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All over the country, men who plan gymnasium seating specify Wayne because Wayne rates high on all important counts —planning—performance—appearance —safety—economy.

PLANNING A GYMNASIUM? Write for your personal copy of Rolling Gymstand Catalog R-55 —a guide to better gymnasium planning. Write direct to—

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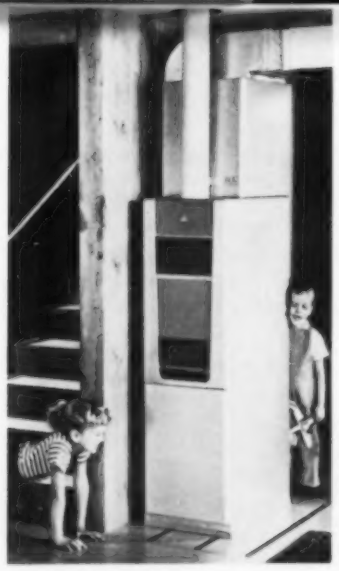

Vest-pocket size, forced-air heating unit has been developed for simple and economical adaptation to year-round air conditioning. Matching plenum on top of unit (left) serves as a section of duct. To adapt Winter Weathermaker to year-round conditioning, one lifts plenum front cover, inserts a cooling and dehumidifying coil, and connects it to an air-cooled condensing unit (nearby garage location is often convenient). Approved for use with all gases and oil. Carrier Corp., Syracuse 1, N.Y.

Hands-Free Telephone (left) has lightweight microphone with automatic volume control that can pick up conversations at ordinary levels from as far away as 20' allowing user to continue to work with hands free. Voice of party on other end of line is amplified and heard through loudspeaker built into instrument. Can also be used like conventional telephone. Stromberg-Carlson Co., Rochester 3, N. Y.

Acousti-Lux panels allow efficient transmission of light, minimize glare, and practically eliminate shadows (above). These translucent ceiling units also absorb sound by a diaphragmatic action in the air space between each pair of panels. The Celotex Corp., 120 South La Salle St., Chicago 3, Ill.

Mylar-plastic template (.0075" thick) is applicable to any type of architectural or mechanical drawing where various broken-line combinations are desired (right). Template is used by placing straight edge on desired stencil and quickly drawing line. Six different types of dot-and-dash lines can be made. Dot-N-Dasher, P.O. Box 668, Cresskill, N.J.

THERMAL FACTORS
FOR PARALLEL REFLECTIVE AIR SPACES
(in Btu's per sq. ft., per hour, per degree F.)

Where dividing media are ALUMINUM with .04 emissivity, spaced 1" apart

Calculated on the basis of work done by the
NATIONAL BUREAU OF STANDARDS
For Housing & Home Finance Agency's Research Paper #32

	UP-HEAT			DOWN-HEAT				SIDE-HEAT	
	C FACTOR	U FACTOR Attic Floor (roof excluded)	U FACTOR Ceiling & Roof (unfloored attic)	C FACTOR	U FACTOR Attic Floor (roof excluded)	U FACTOR Ceiling & Roof (unfloored attic)	U FACTOR Floor Over Crawl Space	C FACTOR Wall	U FACTOR Wall
3 REFLECTIVE SPACES 2 aluminum sheets	.143	.107	.102	.043	.039	.038	.051	.102	.077
4 REFLECTIVE SPACES 3 aluminum sheets	.105	.083	.081	.036	.034	.033	.040	.069	.057
5 REFLECTIVE SPACES 4 aluminum sheets	.082	.068	.066	.032	.030	.029	.033	.051	.044
6 REFLECTIVE SPACES 5 aluminum sheets	.067	.058	.056	.029	.027	.027	.028	.041	.037

Chart of thermal factors for parallel reflective air spaces has been calculated on the basis of work done by the National Bureau of Standards for HHFA Research Paper No. 32, "The Thermal Insulating Value of Air Spaces." Chart developed by: Infra Insulation, Inc., 525 Broadway, New York, N.Y.

Art Metal Elipticone Lighting dramatically invites sales

ART METAL ELIPTICONE LIGHTING creates a buying atmosphere in this contemporary super market.

ELIPTICONE versatility offers:

- Unawareness of light source
- Low initial cost and maintenance
- Color-accenting through color lamps
- High-lighting displays and promotions

THE ART METAL COMPANY • CLEVELAND 3, OHIO

p/a products

(Continued from page 171)

air and temperature control

Power-Miser Air Conditioners: new air-conditioning units for window mounting can be plugged into any electrical outlet and can be moved from room to room. Conditioners, designed for flush mounting, are available for double-hung and casement windows; units, which require only 7½ amp, dehumidify air in addition to cooling it. Units also feature easily replaced disposable filters, thermostatic control of cooling output, and adjustable grills for channeling of air flow. Crosley Div., Avco Mfg. Corp., Cincinnati 25, Ohio.

Marviray Heating Panel: electric, wall heater features anodized-aluminum radiant-heating surface. Electric coils, concealed under aluminum, are said to be highly efficient, safe, and economical; in addition, electric element requires only very low initial inrush of current over rated capacity to deliver full heat quickly. Heaters are manufactured for surface or recessed mounting, in wattage ratings of 1250 and 750, for operation on 115, 208, 230, and 245 v. Marviray, Inc., 54 Clifton St., Newark 5, N. J.

construction

Snap-On Walls: interlocking aluminum extrusions permit new flexibility in treatment of interior walls. Furring, edging, and corner extrusions are attached to walls or supports; snap-on members, with hardboard or metal panels inserted, are then locked into place. System facilitates rapid changing of wall panels for cleaning, painting, or replacement; extrusions may also be used for acoustical ceilings, with perforated panels inserted in snap-on member and sound-absorbing material placed between panel and ceiling. Erdle Perforating Co., Inc., Rochester, N. Y.

Photo: Aluminum Company of America

Field-Assembled Wall Panels: for greater economy in curtain-wall construction, all components of insulated, metal curtain-wall system are shipped to job site where erection and fabrication take place simultaneously. Flat plate, with Z-bar already attached, is welded or bolted to structure; horizontal channels are then secured to Z-bars and glass-fiber insulation bats, 1½" thick, are forced into space between flat plate and channels; after asphalt-impregnated felt strip is pasted on outer side of horizontal girts, ribbed exterior panels are attached. Assembly technique produces panels 24" wide x 3¼" deep, up to 31' long; exterior panels are made in 16-gage aluminum and 18-gage steel. Fenestra Building Products Div., Detroit Steel Products Co., Detroit, Mich.

Glazed Blocks: concrete blocks are now manufactured with glazed interior surface to permit construction of completely finished wall in one operation. Blocks are integrally glazed in terrazzo, granite, or marble finishes in kiln-fast colors; all standard block sizes and shapes, with close dimensional tolerances, are available. Blocks, Inc., 29 Miller St., Leominster, Mass.

doors and windows

Macocraft Windows: line of extruded-aluminum windows is constructed expressly for quality residential and commercial installations. For ribbon windows, space in frame allows for insertion of load-bearing

(Continued on page 176)

NORTON DOOR CLOSERS STILL IN DAILY USE AFTER 32 YEARS OF CONTINUOUS SERVICE IN CHICAGO'S FAMOUS *London Guarantee Building*

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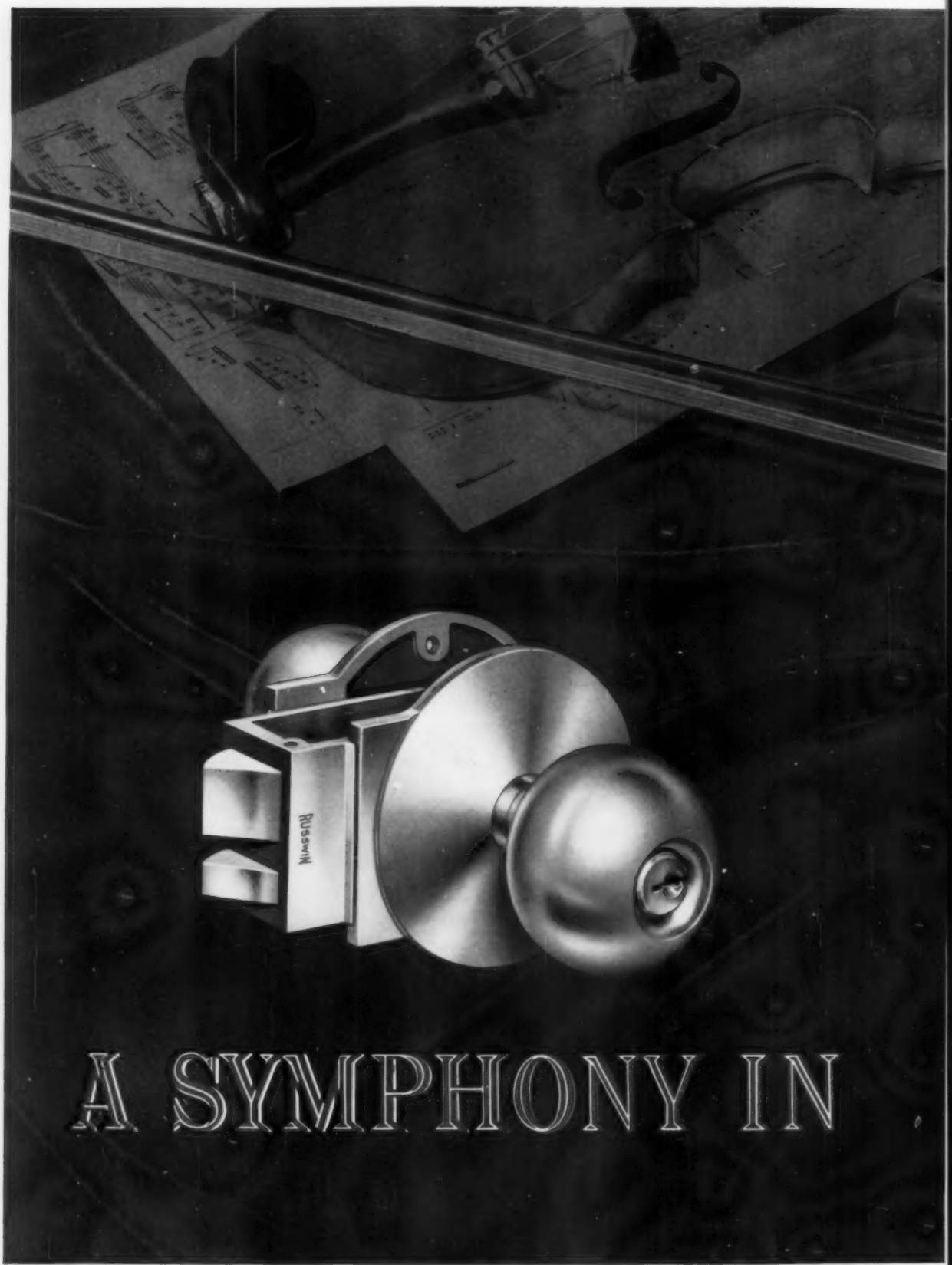
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THE RUSSWIN UNILOC is designed and constructed as a completely-assembled factory unit. Its precision parts are built up one upon another and held in rigid alignment by means of a heavy, one-piece, extruded brass frame . . . thus friction between moving parts becomes negligible. The lock is installed and removed as a unit . . . no parts to take off and put on again, no chance of misapplication. Its patented, all-ball-bearing pin tumbler cylinder and its pullman-type latches contribute to its friction-free action.

There may be other types of locks considered for a building in addition to the *Russwin Uniloc*, but the very nature of its design, construction and installation precludes the same advantages.

For projects where a superior type of competitively-priced lock is in order, count on Russwin Unilocs to meet your most exacting requirements. Russell & Erwin Division, The American Hardware Corporation, New Britain, Conn.

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Fire Exit Bolts

Surface Door Closers

Stilemaker Locksets

"Ten Strike" Cylinder Locks

"400" Closers

Overhead Door Holders

LOCKMAKING

p/a products

(Continued from page 172)

member without need of extra mullion sections; 7" frame section permits use of insulating glass and provides shadow lines. Additional lacquer coat on satin-finish aluminum softens metallic appearance of frames; windows, supplied ready to install, are manufactured in casements, projected, louvered, and fixed sections or any combination of these types. The Maco Corp., Huntington, Ind.

Aluminum Rubbertex: new calking compound, developed for use with aluminum doors, windows, and building materials, is composed of microscopic, rolled flakes of Alcoa aluminum interlocked with rubber. Aluminum flakes form weld-like bond that eliminates moisture, air, and sunlight; rubber base enables compound to provide for expansion and contraction. In addition to long life and excellent adhesive properties, ingredients are claimed to produce soft, pliable compound. Overall Paint and Lead Co., Inc., Cleveland, Ohio.

finishers, protectors

Glid-Tex Multicolored Paint: three different colors of new coating can be sprayed simultaneously from single spray gun. Wall surface is first painted with regular base coat in any desired shade; multicolor spray in combination of yellow, gray, and white covers approximately 30 percent of background color. Due to chemical suspension, applied colors remain separated during spray, resulting in speckled finish; variety is achieved by using different colors in base coat and by regulating spray pressures to change size of applied particles. The Glidden Co., 10999 Madison Ave., Cleveland 2, Ohio.

insulation

Infra Multiple-Aluminum Insulation: laminated aluminum foil and kraft paper bars vapor flow, condensation, and heat flow. Laminated material is incorporated into insulation consisting of multiple layers of aluminum foil; insulation opens out to provide layers of foil, paper, and reflective air spaces. Aluminum surfaces are said to have 97 percent reflectivity to heat rays and only 3 percent absorption and emissivity; heat flow by conduction is slight and laminated layers retard convection. Insulation is fabricated in 16", 20", and 24" widths. Infra Insulation, Inc., 525 Broadway, New York 12, N. Y.

Tectum Ceiling Panels. manufacturers of wood-fiber roof decking are now making this material available in 24" x 48" x 1" ceiling panels. In addition to high sound-absorption properties of material, factory-applied felt backing provides barrier against sound transmission; lightweight, noncombustible material also has significant structural strength and rigidity. Manufactured in off-white, textured surface, panels can be painted without affecting acoustical properties. Tectum Div., Peoples Research & Mfg. Co., 105 S. Sixth St., Newark, Ohio.

sanitation

Lathurshelf Soap Dispenser. new convenience for public washrooms is soap dispenser and shelf for personal articles in one unit. Made of polished, stainless steel, shelf measures 20" x 4¾"; unit is available with one or two soap valves for installation over one or two basins. Liquid soap may be dispensed in lather or straight-liquid form; reservoir holds ½ gal of soap. American Dispenser Co., Inc., 115 E. 23 St., New York 10, N. Y.

specialized equipment

Mono-Aisle Filing System: new storage system doubles capacity of filing space by eliminating all but one aisle. Mobile shelf-storage sections or file cabinets are mounted on sealed, precision bearings that run on steel tracks; sections, even when heavily loaded, are easily moved into aisle for access. System can be used in existing locations or specially designed to meet unusual requirements. Sedgwick Equipment Corp., 259 W. 14 St., New York 11, N. Y.

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ROOTS OF COMTEMPORARY AMERICAN ARCHITECTURE

by LEWIS MUMFORD

Writer, Visiting Professor in Architecture,

North Carolina State College

ERE is the first book to present in detail the original sources and contemporary criticisms that led to the development of modern architecture in America.

Essentially a series of essays by famous architects and critics, both living and dead, the book traces the modern tradition in American architecture from Horatio Greenough, who first formulated the doctrine of form-follows-function, to Matthew Nowicki, who re-formulated that doctrine in the light of a century's experience. Many important essays, little known or never republished, are included — Montgomery Schuyler's critique of the Brooklyn Bridge, John Burrough's pre-Wright description of the modern house, Calvert Vaux's early anticipation of new American forms—together with classic essays such as Sullivan's reminiscences of the great period of Chicago architecture and Hudnut's description of the post-Modern house.

Mainly by drawing on contemporary documents, Mumford's book presents a history of modern architecture over an entire century. By providing a background of ideas and a tissue of connections in the form of a special introduction by the author, this book will prove of unusual interest and value to the practicing architect, architectural student and general reader.

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The attractive apartment group pictured is one of many large-scale public housing projects for which Laclede reinforcing bars were specified. These bars, with their outstanding multi-rib deformations, conforming to ASTM specifications A-305, represent the perfect balance between high strength and maximum anchorage.

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AllianceWare *in Color*

features these two-bath apartments

429 Apartments, Haverford, Penna.—*Owners:* J. M. Arovitch, K. K. Kaiserman; *Plumbing Contractor:* Wilmer W. Watson, Drexel Hill, Penna.; *Plumbing Wholesaler:* M. Schnyder & Co., Inc., Philadelphia, Penna.

Styled as the "429 Apartments" in Haverford, one of the finest residential areas of Philadelphia, Pa., these attractive buildings comprise 60 apartment suites, each with two bathrooms. A similar apartment of 80 units is now under construction and follows the same specifications as the "429 Apartments."

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Discriminating architects, builders, and owners recognize the unusual values of AllianceWare—porcelain-on-steel. That's why you will find AllianceWare in the largest homes, apartments and hotels—and modest, one-family homes, too.

There is only one quality to AllianceWare—the very best we know how to produce. Every AllianceWare tub has a patented "grab-rail" construction for safety in entering and leaving the bath. The exclusive AllianceWare wall hung method of installation keeps tubs from shifting or settling. The AllianceWare wall-guard flange prevents seepage where the tub joins the wall.

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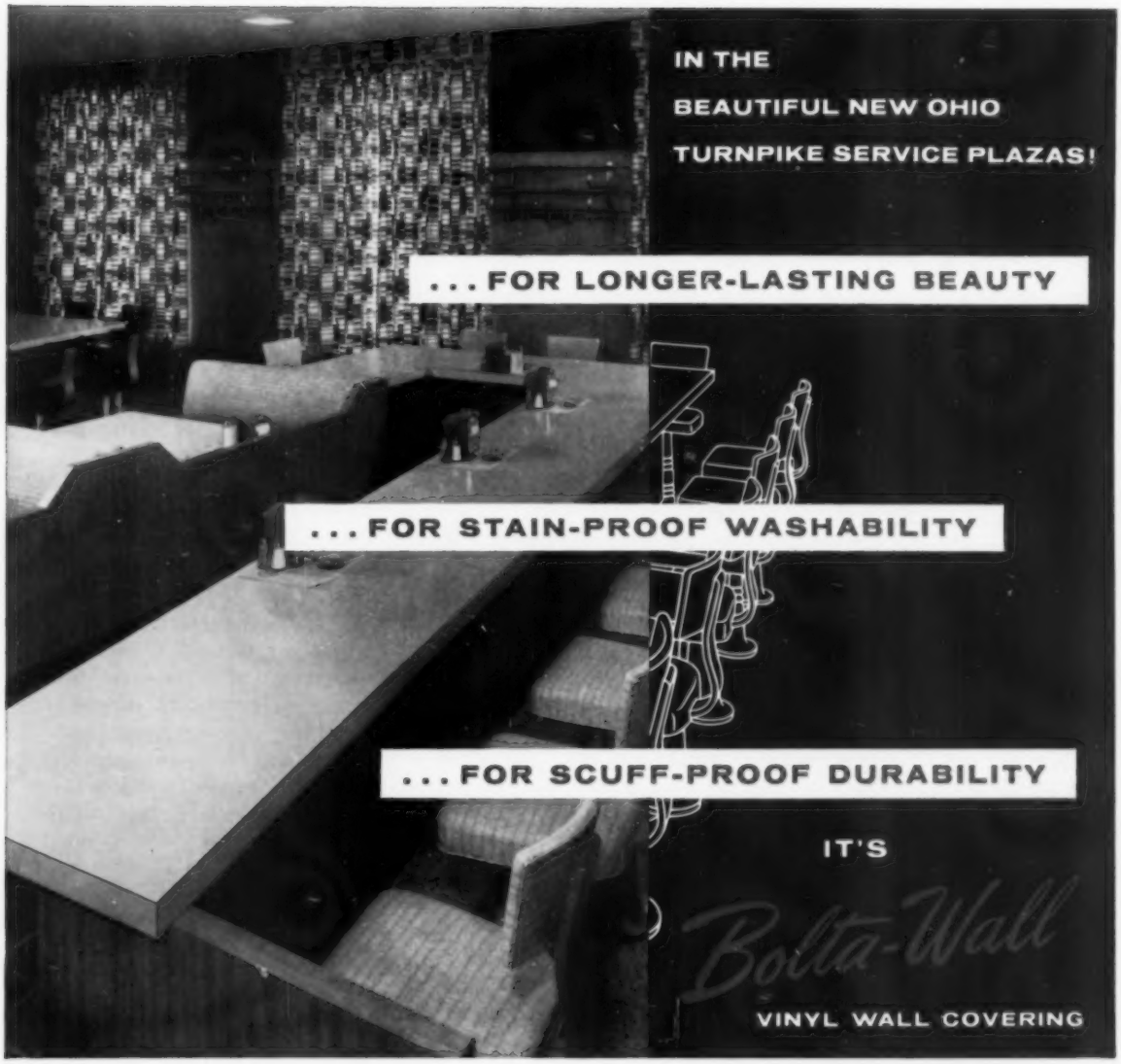
Bathtubs • Lavatories • Closets • Sinks



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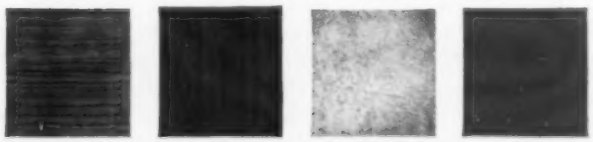

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Makers of famous Bolta Food Service Equipment.

THE GENERAL TIRE & RUBBER CO. • BOLTA PRODUCTS Division • Box 541, Lawrence, Mass.

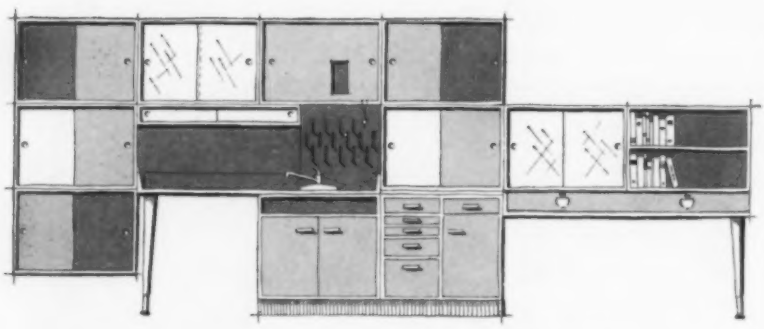
books received

Acoustic Principles: Practical Application. D. J. W. Cullum. The Macmillan Co., 60 Fifth Ave., New York 11, N. Y., 1955. 197 pp., illus., $2

Analysis of Symmetric Cylindrical Shells. John McNamee. British Information Services, 30 Rockefeller Plaza, New York 20, N.Y., 1955. 85 pp., $2.25 (plus 11¢ postage)

American Planning And Civic Annual, 1954. Edited by Harlean James. American Planning and Civic Association, 901 Union Trust Bldg., Washington 5, D. C., 1955. 208 pp., illus., $3

Plastics for Corrosion-Resistant Applications. Raymond B. Seymour and Robert H. Steiner. Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y., 1955. 411 pp., illus., $7.50



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Designers and Manufacturers of
1717 NORTH TENTH STREET • PHILADELPHIA 22, PA.

UNAFLEX
LABORATORY FURNITURE

three young architects

Native Stone. *Edwin Gilbert. Doubleday & Co., Inc., 575 Madison Ave., New York 22, N.Y., 1955. 469 pp., $4.95*

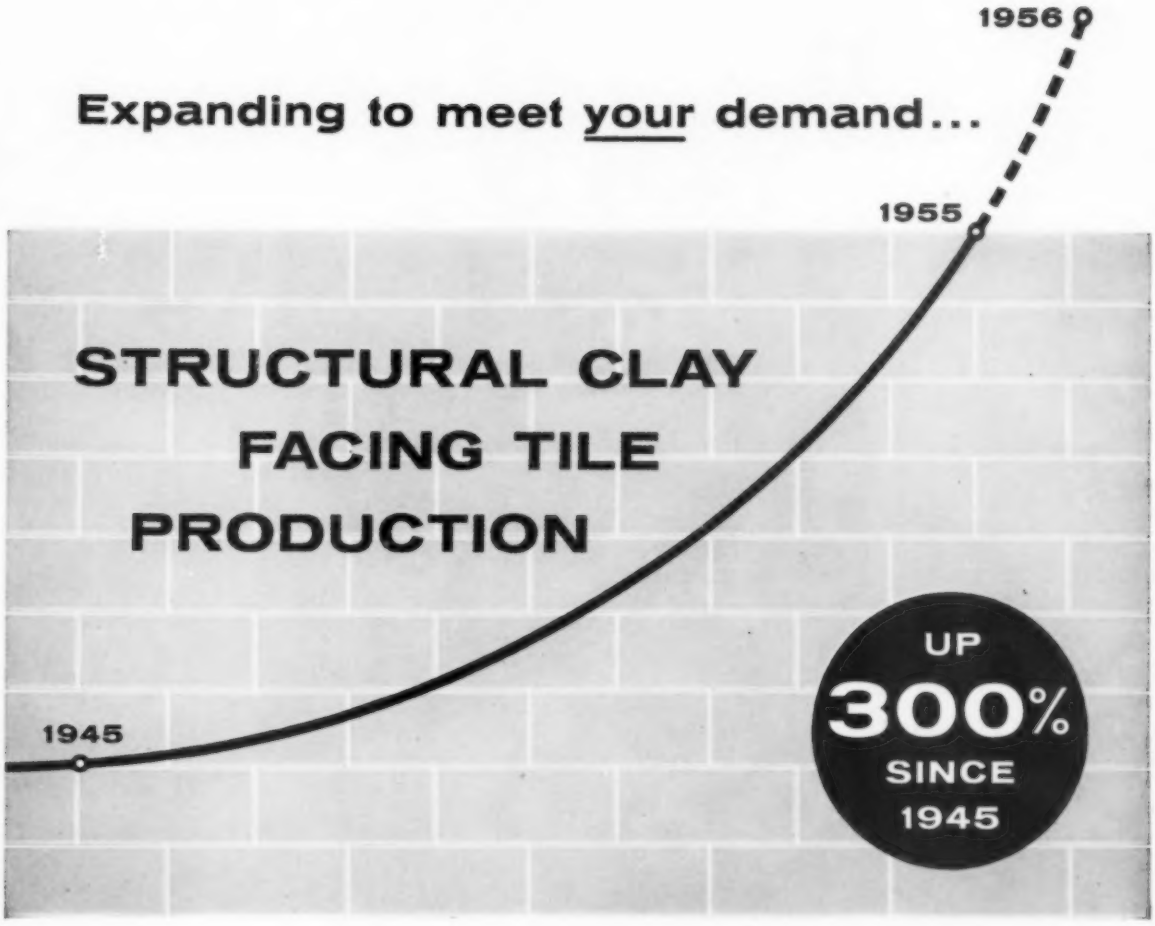
The three principal characters in this novel are young architects whom the author has conveniently set up to represent the divergent viewpoints with which he has chosen to deal. There is Vince, the opportunist, ready to do anything and everything that will swell his practice; Abby, the purist, whose soul reaches for the absolute clarity of a Miesian approach; and Raff, the humanist, to whom people and soil are the basis of architecture.

With considerable honesty, if no great depth, Gilbert (himself a former student of architecture before turning to a writing career) recounts the experiences of the trio through their last days in school and their early years of practice—working in offices, joining in partnership only to break up again, courting clients, getting and losing commissions, etc. Lay readers will undoubtedly gain considerable insight into the problems of being an architect through the carefully prepared and (on the whole) accurate picture the author has painted. Professionals, however, may find it all too familiar to be very interesting, and the exposition of architectural attitudes a trifle too elementary to be illuminating.

Perhaps because he was aware of this hazard, or perhaps because he was, after all, not writing for an audience of architects, Gilbert has wisely interlaced his story with large swathes of sex. His young architects seem to spend their time in almost equal portions bending over a drafting board or an amorous female: *en charrette* or *en lit*, with very little time out for anything but a few too many Martinis. Dr. Kinsey not having made any specific architectural survey, there is no way to check the authenticity of this re-

(Continued on page 184)

Expanding to meet your demand...



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More Structural Clay Facing Tile will be available in 1956!

In the past ten years, growing architectural demand for this versatile material has sparked a 300% boost in plant capacity. And in 1956 Facing Tile production will expand an estimated 30% more.

Member manufacturers of the Facing Tile Institute have also improved quality while boosting output. With the cooperation of architects and builders, they hope to give the building industry even better products and service in 1956.

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30%
MORE
IN 1956

FACING TILE INSTITUTE

2556 Clearview Avenue, N. W., Canton 5-5329, Canton 8, Ohio

In the interest of better Facing Tile construction the companies listed here have contributed to the preparation of this advertisement.

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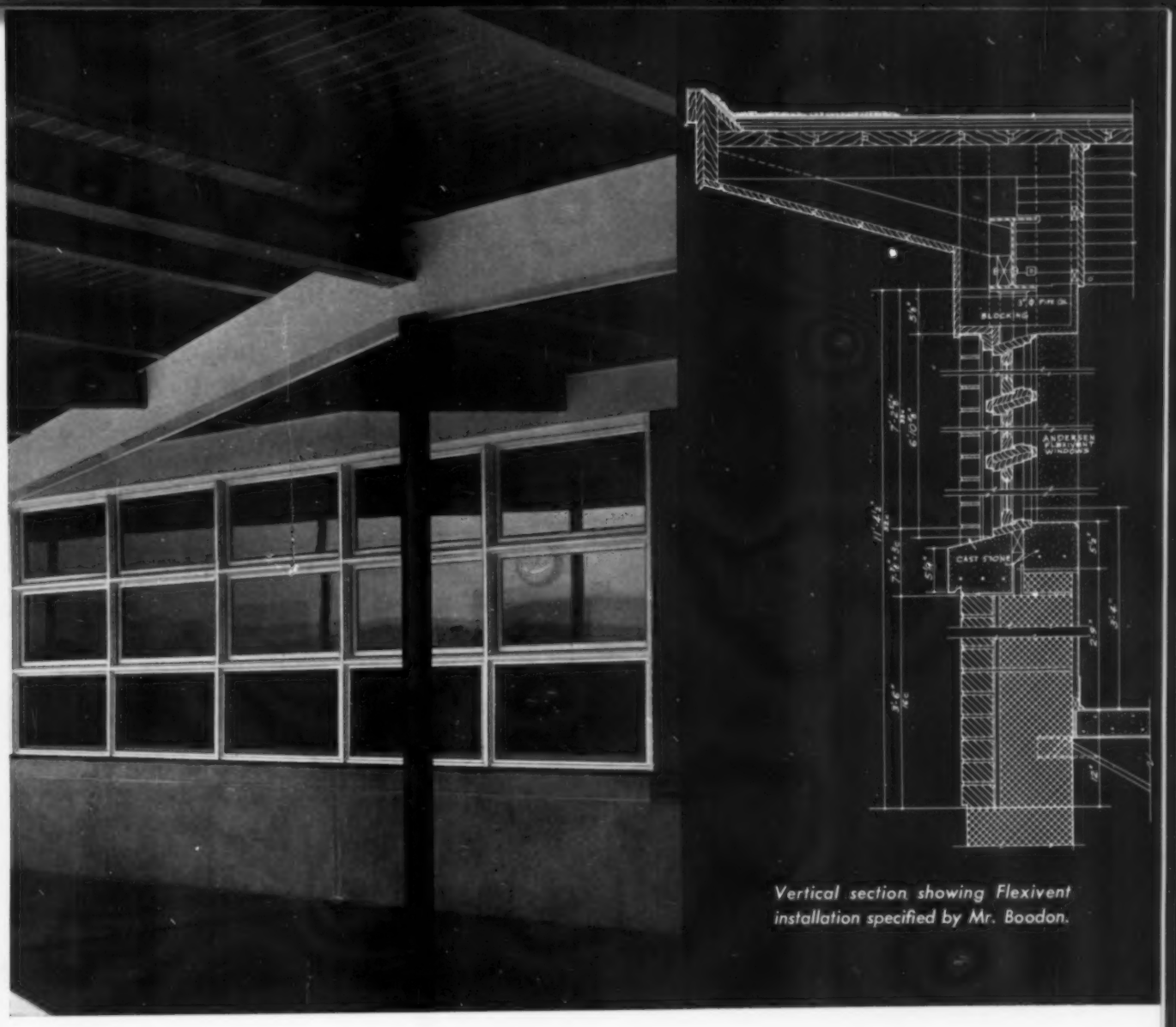
Classrooms of Salem School feature 3-high groups of Flexivents #322. Top row of windows is stationary.

"Flexivents® add warmth and

Classroom scene shows how Flexivent Units made of insulating wood bring atmosphere that Principal Rhinard describes as "warm and homelike . . . so important to elementary schools."



Vertical section showing Flexivent installation specified by Mr. Boodon.

beauty to our new school"

says Pennsylvania school principal

"We are glad Architect John Boodon specified Flexivent Windows for our new building," says Theron R. Rhinard, principal of Salem Township School, Berwick, Pa. "They fit tightly, are free from drafts, yet are opened easily to admit fresh air."

Like so many others across the country, Architect Boodon finds Andersen Flexivent Windows adapt perfectly to the design demands as well as operational requirements of modern school buildings.

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(Continued from page 180)

port on life in the architectural world, but one can be fairly sure that many architects would at least wish it to be true.

With so much erotic entertainment in the novel, it seems carping to point out that some of the details dealing with architecture have been sketched in a rather freehand manner. Gilbert's young architects, for example, do not seem to be concerned over the question of registration, but plunge into practice on their own without bothering with what would appear to be so minor a formality that it is not even mentioned. And really, Mr. Gilbert, this description (page 120) is a trifle hard to accept: "It was a long rectangle sheathed in glass, with three exposed steel columns dividing the glass symmetrically into five sections."

On the whole, however, it is heartening to see a serious writer, which Edwin Gilbert undoubtedly is, build a sincerely felt novel on the very real issues in architecture today. It is a subject of dramatic importance, and one too long neglected.

EUGENE RASKIN

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tribute to hero

Benjamin Henry Latrobe. *Talbot Hamlin. Oxford University Press, 114 Fifth Ave., New York 11, N. Y., 1955. 603 pp., illus., $15*

Many recent books on architectural history and biographies of architects suffer in that they are written solely from the Modern point of view. Consciously or unconsciously they presume that today's architecture is the climax of a long progression and that today's work sets the measure for the past. The net result is a series of works treating architecture as construction, praising "originality"—a most dubious compliment—and accepting great architects as "innovators." The authors employ words like "clean," "cool," "warm," "personal," etc., etc., a vocabulary drawn largely from the kitchen, the bathroom, and the laboratory. Professor Hamlin is a great admirer of contemporary work, and it is true that the words "original" and "originality" and that unfortunate phrase, "creative artist," crop up on occasion, but happily his vast learning and his appreciation of the past correct his penchant for the Modern. In fact, he belongs to that small body, growing smaller with the years, of authors who know how to describe a building properly. He does not have to dip into the Modern vocabulary to evoke his hero's work: he simply tells us what the architect designed. It is very refreshing.

It was, in all probability, a tragedy which drove Benjamin Henry La-

(Continued on page 188)

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(Continued from page 184)

trobe to forsake London for this country. The young Englishman of Huguenot descent had just lost his wife when the future beckoned from this side of the Atlantic. He had no notion of what awaited him and we may well ask why he even considered migrating. From the time of his arrival in Norfolk (1796) at 32, to his death in New Orleans (1820), he was to be plagued by money troubles, always harrassed by the threat of bankruptcy. The provincial attitude of the day toward a man of his genius appears shocking to us, but perhaps we need not be surprised at the lumpishness of our ancestors, considering how the artist is treated in our own time. With no public support of the arts, we are not quite so far removed from mean provincialism as we would like to think. To carry him through the ordeals, Latrobe had to thank his own strength and a blessing in the form of his beautiful second wife, who brought him untold happiness. Some of his letters to her are cited by Professor Hamlin; they offer one of the many rewards of the volume.

Much of Latrobe's work has gone, such as the famous Bank of Pennsylvania, which announced the Greek Revival style, and the Centre Square Pump House of the Philadelphia Waterworks. At least we still have with us the recently restored Decatur House and St. John's Church in Washington, the old State Bank of Louisiana in New Orleans, and the Cathedral of the Assumption of the Blessed Mary in Baltimore. Above all there is his monument, the National Capitol, for here he contributed as much and more than William Thornton. Thomas Jefferson knew his man when he called Latrobe to Washington to supervise the Capitol's construction; there was no one else at the time capable of bringing the desired grandeur to the nation's most important building. From 1802 to 1818, with several years of interruption, he was at work on Federal projects, mainly the Capitol. As Professor Hamlin rightly points out, the central portion is the work of Latrobe.

The corn tobacco capitals and the Rotunda come first to mind when we think of his contribution, but it is especially the old chamber of the House of Representatives, now Statuary Hall, where he achieved his best. Today, even the indifferent statues of our statesmen and heroes do not rob the room of its elegance, but it is a pity that it is not hung with the red stuffs which once graced it. The handsome marble columns, the Corinthian capitals, the coffered vault and the ornamental sculpture (he sketched the design of the "Char-

(Continued on page 193)

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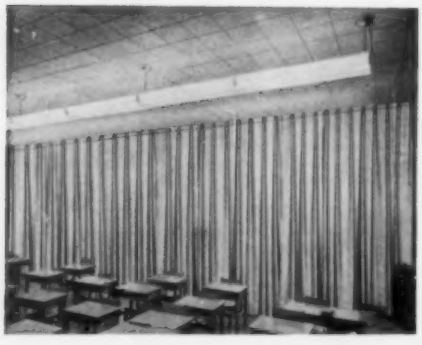

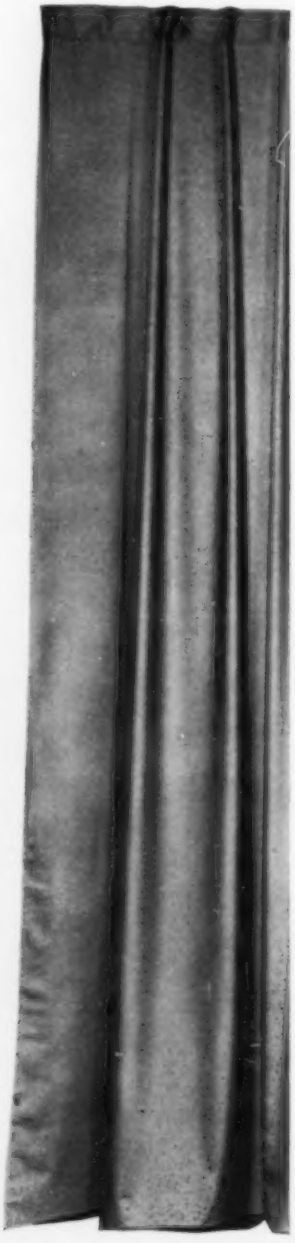

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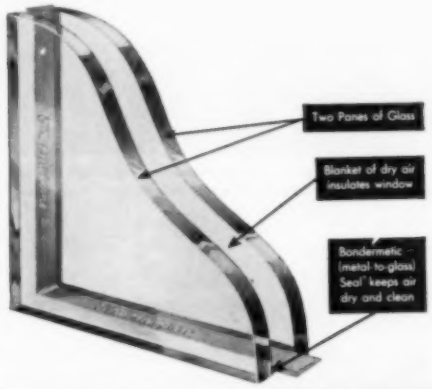

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a Great Name in Glass

reviews

(Continued from page 188)

iot of History" for the sculptor Carlo Franzoni) were all his. It was at the time the one truly monumental interior in the country and it remains one of our best. He, as much as Jefferson, helped set a standard of grandeur in public architecture by planting it solidly in the Classical tradition, a standard which we see fit to abandon today.

The Federal Government, interestingly enough, proved to be the best of all his clients. His immediate superiors may have been difficult to work with, but unlike his private clients, they could not stop him from being paid.

One of the pleasing aspects of Latrobe was the wide range of his skills, for he could have been a painter, as he was an engineer and an architect. Nor was he denied ability in writing; witness his letters and his journals. It is not surprising that he and Jefferson understood one another from the beginning; they both enjoyed a persistent and delightful curiosity. His curiosity, as much as the ever-present hope of gaining financial security, often drove him into all kinds of speculative schemes, from canal building to steam boating. Rarely successful, he brought to them undying enthusiasm and ever-present intelligence which make us rise with him in his hopes and suffer with him in his disappointments. Professor Hamlin takes us through the mazes, architectural and financial, with tender care.

In one sense, this definitive biography is an introduction to the vast subject called "Latrobe." Something must be done to bring all of his work, his architectural drawings, his sketches, his letters and his journals, to the public. Samuel Wilson, Jr., has touched some of the material in his edition of Latrobe's *Impressions Respecting New Orleans*. Latrobe needs a latter-day Earl of Burlington or a Crozat to bring all his work to the public. Professor Hamlin,

(Continued on page 196)

WHY DIDN'T THEY GET WINDOWS WITH CALDWELL BALANCES?!

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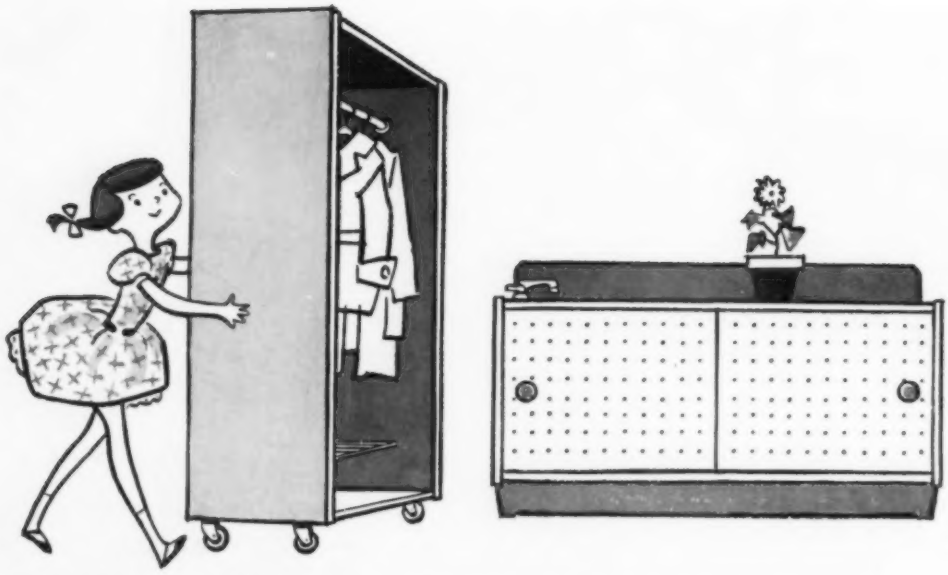

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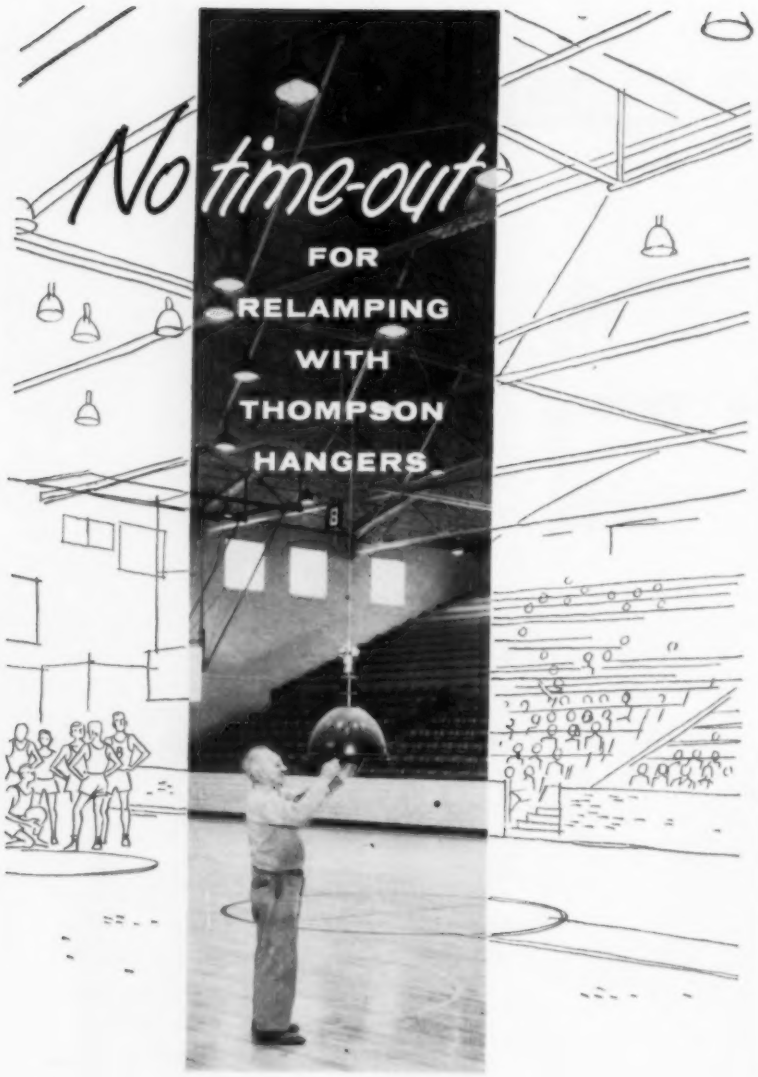

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reviews

(Continued from page 193)

aided by one of our great foundations, is obviously the man to add this future twin to the monument he has here consecrated to Benjamin Henry Latrobe. HENRY HOPE REED

ideas that wear well

The New Architecture And The Bauhaus. *Walter Gropius. Charles T. Branford Co., 551 Boylston St., Boston 16, Mass., 1955. 112 pp., illus., $3.50*

This reprinting of an earlier Gropius book serves as a reminder of his early design principles. A generation ago, many of them seemed fresh, inspiring, and to some, radical. From long familiarity, they now appear slightly old and conservative. This reprinting without change of text does not help toward a change in their general appearance; Gropius' thoughts on design deserve better treatment.

Naturally many of his ideas formed the working basis of the Bauhaus curriculum; there, rationalization and standardization of design approaches were emphasized. Architecture, allied arts, industrial design, town planning, and similar subjects—all as taught at the Bauhaus—are briefly discussed in this book.

Many illustrations of Gropius-designed buildings are included. On seeing again his Fagus Boot-Last factory designed in 1911, one is strongly reminded how much indebted to Gropius are the designers of several recent prize-winning buildings. The ideas of Gropius may seem old, but they wear well.

LAWRENCE E. MAWN

incidence to something

Why Families Move. *Peter H. Rossi. The Free Press, Glencoe, Ill., 1956. 220 pp., $4.*

This is the Kinsey report of the moving industry. With the same scientific pointlessness with which the

(Continued on page 198)

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Building Engineer

General Petroleum Building, Los Angeles

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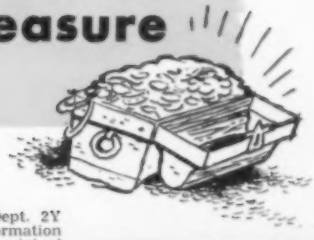

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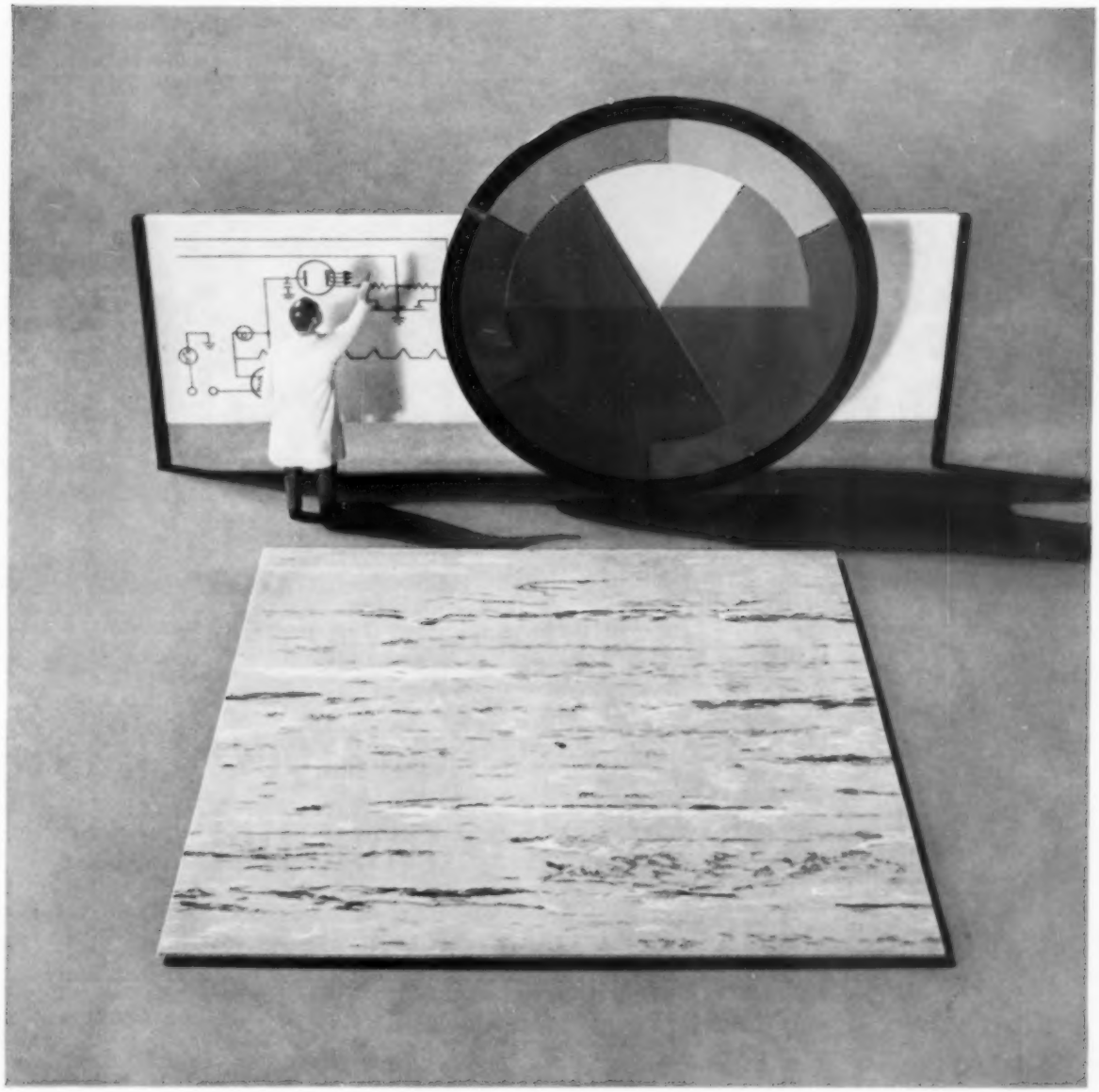
reviews

(Continued from page 196)

great doctor from Bloomington, Indiana recorded "incidence to orgasm" in the human fruit fly, a sociology professor from the University of Chicago tabulates why the American people move so much. It took Kinsey 571 pages to arrive at the profound statement that "a sexual response is one which leads an animal to engage in mating behavior." Professor Rossi is rash enough to conclude right on the book jacket "that residential mobility is the mechanism whereby family needs and housing are brought into adjustment to each other"; and further on in the study, the startling conclusion has been reached that "wanting to move may be viewed as the initial step in a sequence leading eventually to the act of moving itself"; and (some 30 pages later) "the starting point of the moving process . . . is the decision to leave the old dwelling."

If we are to believe the statistics compiled in a house-to-house canvass in West Philadelphia, a large number of movers are moved by an irrepressible need for more closet space (33%) and don't give a damn about better schools—a few (6%) express concern, which is a notch lower than the desire for a church (9%). Next to cost, it is the outside appearance of a place that attracts the fickle butterflies (50%), and they keep on reading the Want Ads (63%) although this has an effectiveness index of only .29, while any old real estate shark can serve them (.28) effectively, and "personal contact" proves a whooping .76—which is what we suspected all along. The tabulations are couched in a professional lingo that ranges from the absurd to the ridiculous: "The coefficients in this table are product moment correlation coefficients computed from fourfold tables"; "The more mobile the neighborhood, the less likely are its residents to form personal ties with their neighbors"; "Single persons consist of persons living alone." And my personal

(Continued on page 201)

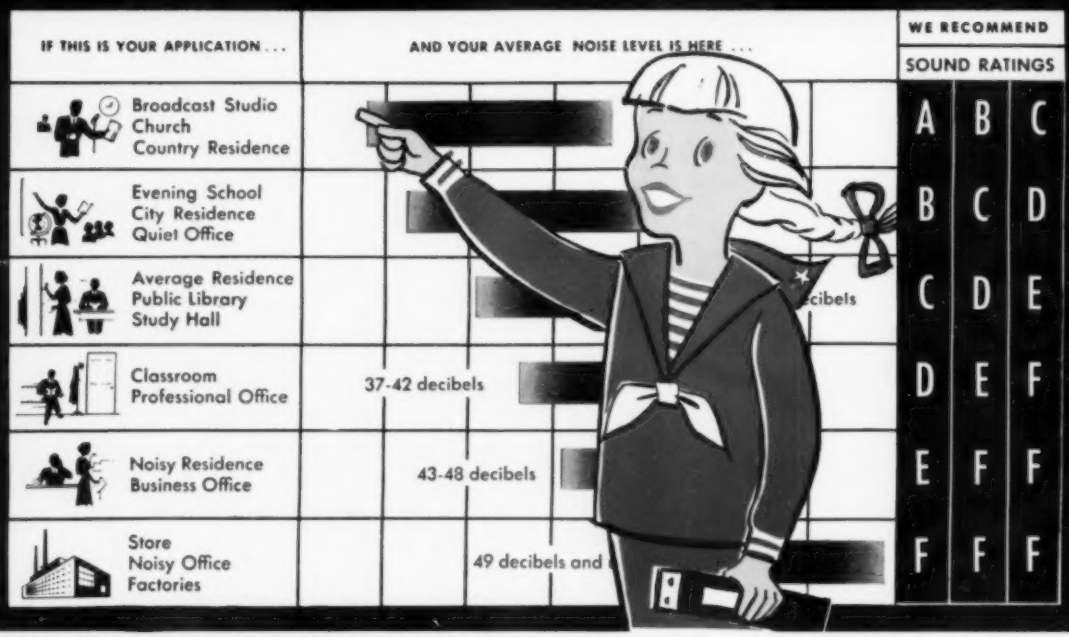


Controlled color in floor tile

In the laboratories of Kentile, Inc., precise tests electronically check the accuracy of pigment shade in every run of color, to help assure you of uniformly true color and clarity in the flooring you specify. This is only one of the many precision controls that have served to make famous Kentile, Inc. products the world's most popular line of resilient tile floorings. Other tests assure uniformity in thickness; accuracy of cut; surface smoothness; built-in durability and dimensional stability. The tile illustrated is Marigold, one of the many colors available in the KenFlex line.

KENTILE, INC. America's largest manufacturer of resilient floor tiles

KENTILE Asphalt Tile, Carnival Kentile, Corktone Kentile/KENCORK, Cork tile for Floors and Walls/KENRUBBER, Rubber Tile/KENFLEX, Vinyl Asbestos Tile, Carnival Kenflex, Corktone Kenflex/KENFLOR Vinyl Tile, also available by-the-yard. KENROYAL Vinyl Tile/SPECIAL KENTILE, Greaseproof Asphalt Tile/THEMETILE, KENSERTS, Decorative Inserts/KENCOVE, vinyl wall base/KENBASE, wall base.



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Fluorescent lighting today is used in a countless variety of applications; from ultra-quiet broadcast studios and library reading rooms to noisy factories and offices. To help you select a lamp-ballast combination to meet the sound requirements of your installation, General Electric conducts extensive tests to measure the average sound level of each ballast model. This measurement is called "Sound Rating."

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Next time you specify equipment for a fluorescent lighting installation, make sure you get the best . . . specify General Electric sound-rated ballasts. Look for the sound rating on the nameplate. A G-E ballast tag or sticker on your fixture is proof that it's equipped with the best in ballasts. It's the easy way to be certain. For further information on G-E ballasts, write Section 401-8, General Electric Company, Schenectady 5, New York.

*Miss Fluorescent Ballast, G.E.'s Ballast Mascot.
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- **PROVED PRODUCT LEADERSHIP**
- **COMPLETE CUSTOMER SERVICES**

Progress Is Our Most Important Product

GENERAL ELECTRIC

reviews

(Continued from page 198)

favorite (which I might sell for a substantial sum to Rodgers & Hammerstein):

"Anxious to stay.
Stay but not anxious.
Move but not anxious.
Anxious to move."

The final conclusions drawn by the author from this fund-supported (naturally!) research project, are in complete accord with the brilliant study by Dwight MacDonald, published recently in *The New Yorker*, dealing with the frustrated and frustrating activities of The Ford Foundation. The result of the study, *Why Families Move*, is, on the one hand, the admission that the "four study areas whose residents have been studied are not a representative sample of any urban place," and, on the other, a rather pompous incentive to more research.

To the fact-hungry layman, concerned with residential architecture, this "wedge into further research" is as unrelated to the ambitious drives and the romantic curiosity that keep America moving, as the Kinsey report is to love. Somewhere, Rossi admits that each of the millions of moves made is conditioned by a specific "household need" and hardly the object of classification. To us the *real* reason why people move is much more intelligibly expressed in an anecdote about the lady born somewhere west of Flatbush Avenue in Brooklyn. In time, Papa did better and she went to high school in the West Bronx. The promising young man she married took his bride to Riverside Drive, and in due course could afford Central Park West. As the years passed and chronic prosperity set in, there came the day when they took possession of a penthouse on Sutton Place. As they sat on their terrace, the husband—with pardonable pride—pointed out the magnificent sunset. "Quite nice," the lady agreed, "considering that it comes from the West Side."

SIBYL MOHOLY-NAGY

(Continued on page 204)

Housing for B-47 jet bombers under construction at Homestead, Florida Air Force Base. Designed by The Kuljian Corporation, Architects and Engineers. All structural steel and hangar doors by International.

Each of this huge structure's two sides comprises 11 International-built doors — each door self-propelled, 64 feet high and 35 or 40 feet wide. Together, they form a weather-tight wall when closed, even when planes extend partially outside. All doors open with pushbutton ease, individually and in any combination, to match any entrance need at this giant maintenance hangar. Before planning door installations for any plant or aviation building, check with International . . . where you'll find the kind of teamwork that can help you make short work of entrance problems.

See Sweet's Industrial Construction File No. 7a

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LARGE AUTOMOTIVE MANUFACTURING PLANT
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Architect & Engineer: **H. E. BEYSTER & ASSOCIATES, INC., Detroit, Mich.**
General Contractor: **THE JOHN W. COWPER CO., INC. Buffalo, N. Y.**
Sheet Metal Cont.: **WEAVER METAL & ROOFING CO., INC., Buffalo, N. Y.**
Revere Dist.: **WHOLESALE BUILDING MATERIALS CORP., Syracuse, N. Y.**

In this 1,000,000-square-foot plant expansion program, there were 80,000 lbs. of Revere Sheet Copper used covering every conceivable type of flashing. Here are some of the more important reasons why copper was chosen as the material for the job: Copper has been "century-tested" . . . no other metal can come even close to equaling the centuries of satisfactory service enjoyed by copper. The reason for this endurance performance is due to the non-rusting qualities of copper. Copper lends itself to any type of architecture. It is readily fabricated into any desired shape, being formed and soldered without special tools or undue effort. To wrap it up . . . there is not another metal or alloy that has all of the desirable construction characteristics of copper.

You don't get an expansion joint like the one shown on the opposite page every day in the week, so we thought it would prove interesting both to architects and contractors to show how this particular joint was constructed.

To make it easy to follow we have shown both photographs and details of the various steps. This particular joint bridged the gap caused by adding a new section to an existing plant.

As an added service to architects and sheet metal men all Revere Sheet, Strip and Roll Copper is now marked with the correct gauge and temper in water soluble ink. Ask your distributor to show you. Also ask him about the neat-appearing, weather-tight, easy-to-install Revere-Keystone 2-Piece Cap Flashing.*

**Patent No. 2,641,203 Other Pats. Pending*

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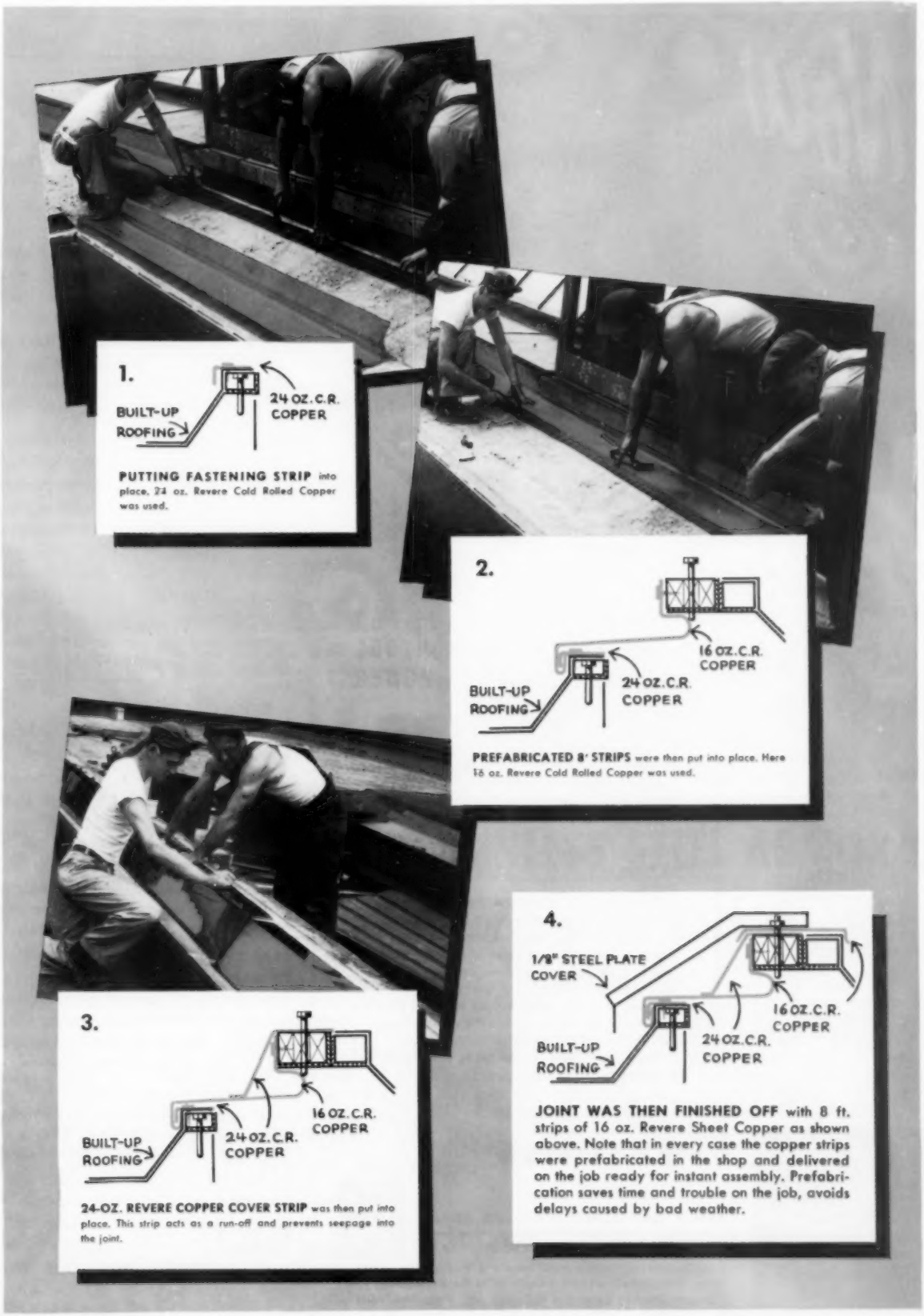
1.
BUILT-UP ROOFING
24 OZ. C.R. COPPER
PUTTING FASTENING STRIP into place. 24 oz. Revere Cold Rolled Copper was used.
2.
16 OZ. C.R. COPPER
BUILT-UP ROOFING
24 OZ. C.R. COPPER
PREFABRICATED 8' STRIPS were then put into place. Here 16 oz. Revere Cold Rolled Copper was used.
3.
16 OZ. C.R. COPPER
BUILT-UP ROOFING
24 OZ. C.R. COPPER
24-OZ. REVERE COPPER COVER STRIP was then put into place. This strip acts as a run-off and prevents seepage into the joint.
4.
1/8" STEEL PLATE COVER
16 OZ. C.R. COPPER
BUILT-UP ROOFING
24 OZ. C.R. COPPER
JOINT WAS THEN FINISHED OFF with 8 ft. strips of 16 oz. Revere Sheet Copper as shown above. Note that in every case the copper strips were prefabricated in the shop and delivered on the job ready for instant assembly. Prefabrication saves time and trouble on the job, avoids delays caused by bad weather.

HERE'S IMPORTANT DATA ON EXPANSION CONTROL

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Flexon Expansion Joint Design Guide

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In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

reviews

(Continued from page 201)

approaches to history

Architecture. *W. R. Lethaby. Third Edition. Oxford University Press, 114 Fifth Ave., New York 11, N. Y., 1955. 220 pp., $4.25*

Architecture, Ambition, and Americans. *Wayne Andrews. Harper & Brothers, 49 E. 33 St., New York, N. Y., 1955. 315 pp., illus., $7.50*

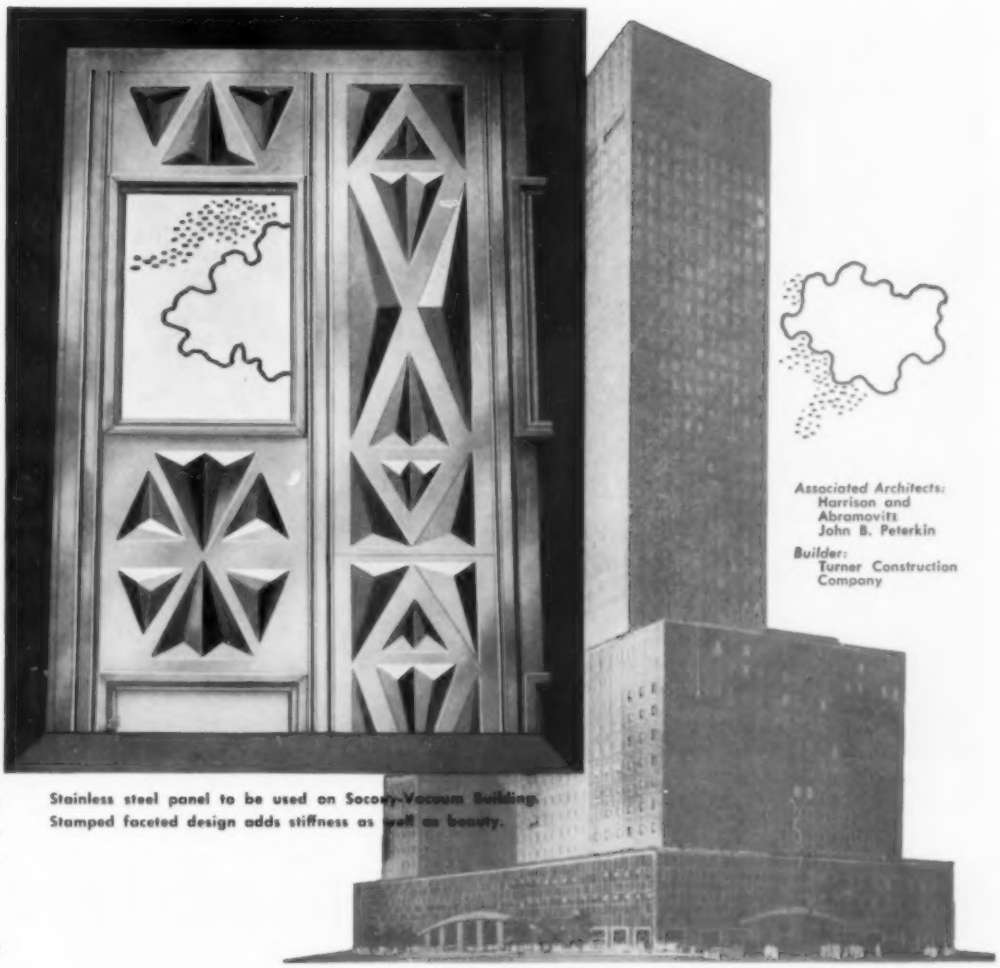
Architecture in the Age of Reason. *Emil Kaufmann. Harvard University Press, 44 Francis Ave., Cambridge 38, Mass., 1955. 279 pp., illus., $10*

Three contributions to the history of architecture, recently published, should be discussed in comparison with each other—just because they are so entirely different. Each represents most distinctly a type and category of its own: the textbook; the historical essay, equally interesting for the professional and for the layman; and the profoundly scholarly book, dedicated to specific problems.

History of architecture generally is not a topic to arouse the enthusiasm of the architectural student of today. Unfortunately, it must be admitted that interest in this field is rapidly vanishing, except where the personality of the teacher is able to overcome the intrinsic indifference of the student who primarily desires to become a good modern architect. The reason for this attitude is obvious: the fallacy of an over-rated functionalism and the erroneous belief that studying the past implies imitation or even identification with the past. The epoch of architectural eclecticism is now so definitely over, for more than a generation, that even a *soupçon* of such suggestion seems utterly ridiculous. The truisms that the past is part and parcel of the present, that one cannot escape history, that each generation culls entirely different values from the past, need not be repeated here.

The *textbook* is exemplified by a new edition of good old Lethaby's

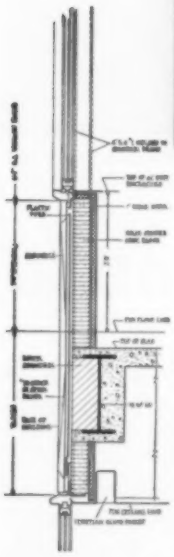
(Continued on page 208)



Stainless steel panel to be used on Socony-Vacuum Building. Stamped faceted design adds stiffness as well as beauty.

Associated Architects:
Harrison and Abramovitz
John B. Peterkin

Builder:
Turner Construction Company



Detail drawing showing how stainless panels will be installed.

STAINLESS STEEL ARMOR ...for a New York GIANT!

There's *extra* bustle, these days, in busy midtown Manhattan. It's caused by the construction of a new 42-story, 45-million dollar Socony-Vacuum Building . . . New York's largest in 25 years.

Most distinctive architectural feature of this robust giant will be its *stainless steel* skin. An armor of .037″ thick 18-8 chromium-nickel stainless, type 302, was chosen for very *practical* reasons. Not only will stainless walls mean lasting beauty, but they'll save many tons of excess weight. For the stainless skin will weigh only 1½ lbs. per sq. ft., as compared to 48 lbs. per sq. ft., for a 4″ brick exterior wall.

Crucible is one of several leading producers who are supplying the stainless steel for this skyscraper. When completed it will be the largest metal-sheathed office building in the world. In planning *your* next project consider the advantages of stainless. For helpful suggestions, write for your copy of "A Guide to Future Uses of Stainless Steel in Architecture and Building." *Crucible Steel Company of America, Henry W. Oliver Building, Pittsburgh 30, Pa.*

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229,000 Sq. Ft. of Cofar on Wheeling's Wharf Municipal Parking Deck. 3½" concrete slabs, on spans of 6'9", were used on this job now under construction.

Cofar® concrete slabs make

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Cofar is making huge savings for designers, contractors and owners of parking decks. By combining form and reinforcing operations into one quick step, Cofar cuts out the time, material and money normally expended in old-fashioned form work.

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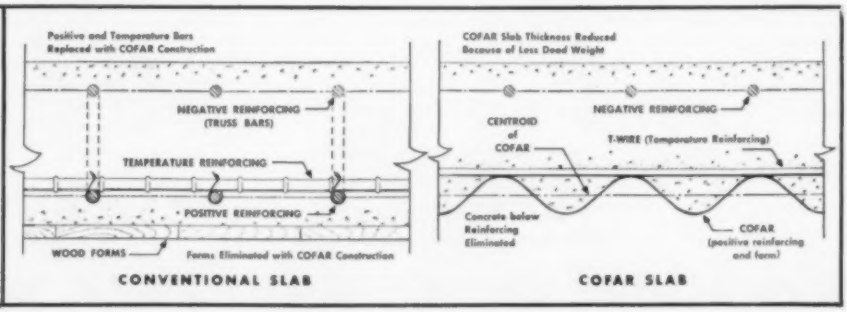
COMPARISON OF CONVENTIONAL AND COFAR SLABS



326,000 Sq. Ft. of Cofar on 6′ 6″ spans were used on the Parkade, Camden's new parking deck and office building.

Architects & Engineers: *Ziegler, Childs & Paulsen.*
Consulting Engineer: *Lars I. Moe & Sons.* Builder: *Terminal Construction Corp.*

62,000 Sq. Ft. of Cofar on 9′ 0″ spans forms and reinforces the 3½″ concrete slabs of the four floors of Toledo's new City Hall Realty Parking Deck.

Architects: *Samborn, Steketee and Associates, J. H. V. Evans.*
Contractor: *Geo. W. Lathrop & Sons, Inc.*

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On-the-job photos show Cofar advantages

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Immediate working deck. Cofar forms a solid, safe, sheltered working deck for all trades.

Quickly and easily placed. Cofar units are welded in seconds to steel framing members.

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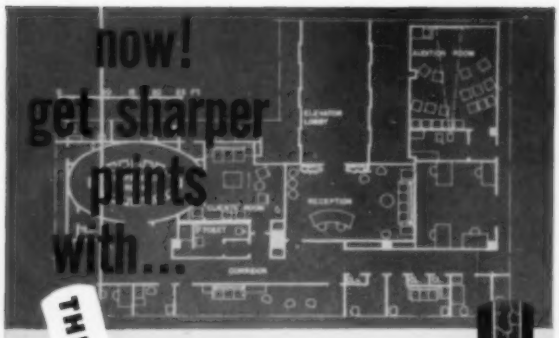
reviews

(Continued from page 204)

Architecture, An Introduction to the History and Theory of the Art of Building, originally published in 1911, now in its third edition, with text unchanged, but prefaced and epilogued by Basil Ward, the Lethaby Professor of Architecture at the Royal College of Art, London. During the last 20 years we have learned to do more justice to the esthetic values of the Victorian and Edwardian epochs than was granted by the generations immediately following those epochs. Thus one is inclined to lean over backwards in order to appreciate the specific values and to understand not only the architecture but also the ideas and beliefs of the Victorians. We do not suppose any longer that every eclectic architect automatically produced bad architecture; on the contrary, the literature of the last years—to mention only Hitchcock's *Early Victorian Architure*—discovers its merits anew. But even with such an attitude, it is not possible to accept the textbook of an author who in his own words found that "the Renaissance is a style of boredom," and for whom good architecture means exclusively Greek and Gothic art; and who believed that Egyptian architecture "developed joyously but was too soon imprisoned by ritual rigidity and frozen by a dead hand." In an introduction to and a survey of the whole history of architecture on 212 pages, only six pages are dedicated to the Renaissance (not even mentioning St. Peter's) and the whole 17th and 18th Centuries, (Baroque and Classicism) simply do not exist. That Lethaby's chapter on "The Modern Position" does not conform to our opinion is certainly not to be blamed on the author, but is understandable from the date (1911) of the original edition. However, only three years later, Geoffrey Scott's *The Architecture of Humanism* (1914) was published, and how fresh

(Continued on page 212)



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porcelain enamel design competition

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Cranbrook Academy of Art
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Associates:
Patrick S. Raspante
Jerome L. Strauss
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Tivadar Balogh, Architect
1052 Arlington Boulevard
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Bruce Abrahamson
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We wish to express our thanks to the more than 5,000 architects, designers and students who registered for the porcelain enamel design competition. To the 573 registrants who submitted entries we wish to commend the excellence, originality and creative thought given to all of the designs. And to those who had the most difficult task of all, the judges, we wish to offer our gratitude for the many hours they devoted to the competition.

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reviews

(Continued from page 208)

and eminently readable this work still is today. How, then, it is possible for Professor Ward to call Lethaby's concepts "prophetic" and to define the gap between Lethaby and us as "narrow by purely temporal measurement and insignificant," is not understandable. And no Ruskinian influence can help to explain it!

Our ethusiastic acclaim for Wayne Andrews' *Architecture, Ambition, and Americans* is certainly not based on the mere fact that he is a contemporary. In his extremely modest foreword, Andrews states that his book is "not about building in America, but about architecture as a fine art . . . a book about taste." Those who commissioned the greatest buildings and their ways of life are as much in the center as are the architects. Actually, it is as much a sociological study as a discussion of architectural problems. A tremendous knowledge, well documented by historical research not only in the field of architecture, but also in economics and general American history, is unpretentiously offered in a highly readable style, elucidated by the author's original and often unique photographs of architecture from the end of the 17th Century through our own time. Historical epochs and regional differentiations are not only characterized but also explained by the change of socio-economic circumstances, whether it is the splendor of Southern architecture or the inhibited puritanism of New England, whether it is the Romantic era or the elegance of the pre-World War I period, or the development of modern functionalism in Chicago, etc.

In his chapter on "Modern Times," a most precise and subtle definition of modern American architecture and its critics, the author analyzes and postulates three fallacies which in his opinion explain the superficial triviality of most contemporaneous

(Continued on page 214)

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HONEYLITE panels are available in standard sizes for easy installation in standard T-bar suspension systems. Easily removable, relamping and maintenance work is reduced to a minimum.
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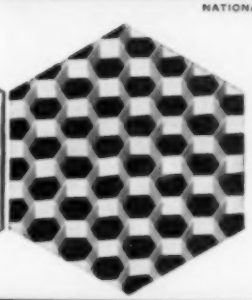
(shown at right actual size) installation is simple, inexpensive. For full ceilings, aluminum T-bars are used to suspend **HONEYLITE** panels below lighting units. **HONEYLITE** is also ideal for use in troffers and lighting fixtures.



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reviews

(Continued from page 212)

writing on architecture. It is first the *temporal* fallacy, according to which "the architect is bound by some sort of higher law to express the spirit of his time," which in Andrews' opinion explains the cold mechanism of Le Corbusier—just another case of misinterpreting Hippolyte Taine. The second, the *intellectual* fallacy, is the identification of architectual expression with new scientific discoveries and he quotes, as an example, Giedion: "Space in modern physics is conceived of as a relative to a moving point of reference, not as an absolute and static entity of the baroque system of Newton." Convincingly, Andrews states that "scientists have been taught that post-Newtonian physics may be of more help in measuring time on planets beyond our ken than in walking up and down a flight of stairs on earth." And as to the third, the *moral* fallacy, he quotes Lewis Mumford, who sees in the modern American kitchen "the moral flower of that long discipline of the spirit which Western man has undertaken during the last millennium under the forms of monasticism, militarism, and mechanism." In hearty agreement with Andrews' approach, one should mention that it still needs quite some courage to unveil the unessentiality of the above-mentioned dicta. Thus he finally establishes two types of architects whom he distinguishes, the "Veblenite" architects—"cool, impersonal, anti-individualistic, dogmatic, worshippers of the machine and spellbound by modern materials . . ."—and the "Jacobites" (derived from William James)—"warm, personal, individualistic . . . concerned with the nature of materials . . ." This antithesis is so much to the point that it may well develop into a nice parlor game among professionals to put individual colleagues into the respective pigeonholes.

And yet—in spite of his very defi-

(Continued on page 218)

beauty . . . service . . . imagination

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glazed facing tile

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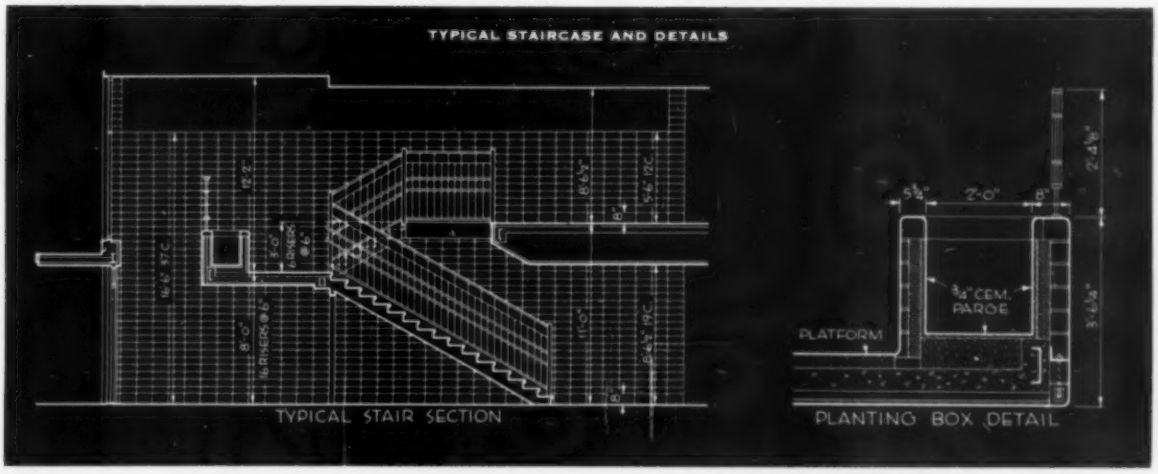

Elementary School, Ellenville, N. Y.
Howard C. Snyder, Reginald E. Marsh, Starett and Van Vleck, Associate Architects.

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Nationwide network of factories and warehouses
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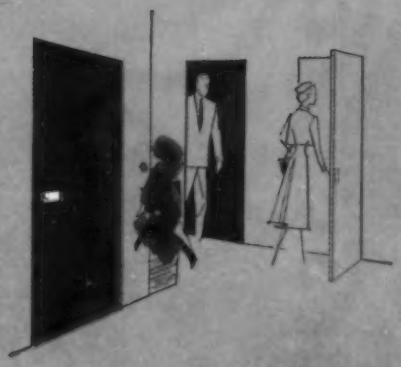
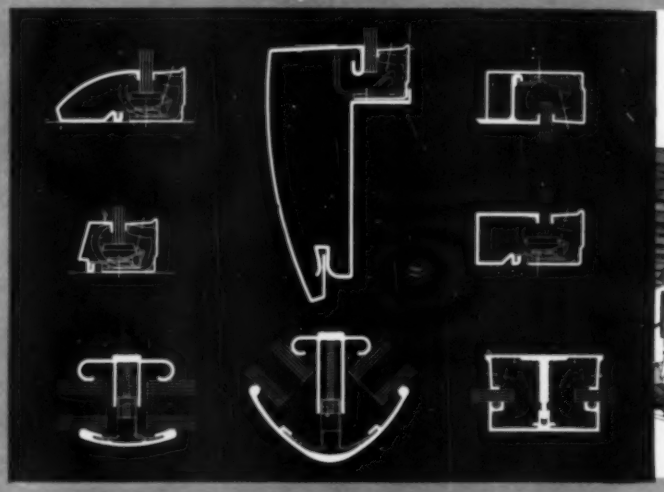


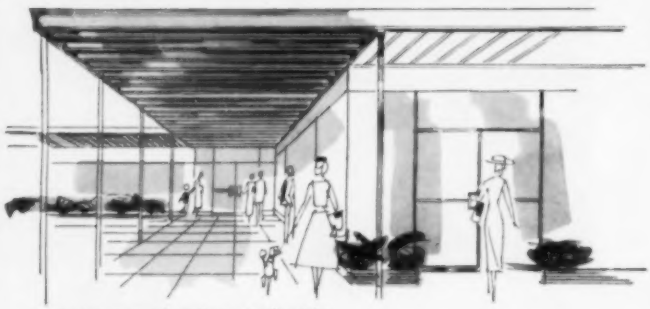
doors and entrances

To enhance the merchandising effect of an outstanding window display, Kawneer many years ago developed entrances that would invite the public to enter. Today the epitome of doors and entrances has been developed. Kawneer's narrow-stile, all-welded aluminum doors and shop-prefabricated interchangeable hardware . . . an exclusive innovation . . . enables complete flexibility and individuality of design.



resilient sash

An apparent need for a sash that would "give" with the flexing of glass prompted the city architect of Kansas City, Mr. Francis J. Plym, to invent the first resilient sash. Since this time in 1906 many Kawneer sash assemblies have been developed and patented to provide you with a maximum variety of members from which to choose.

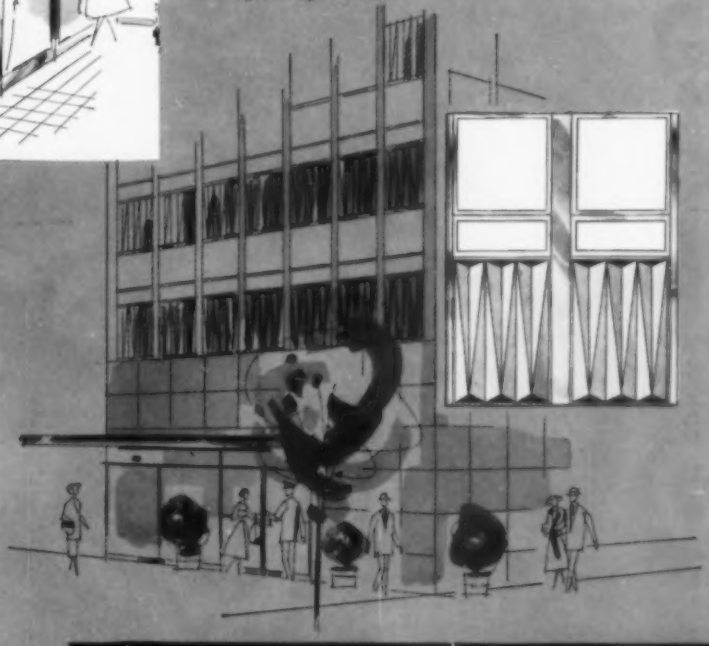


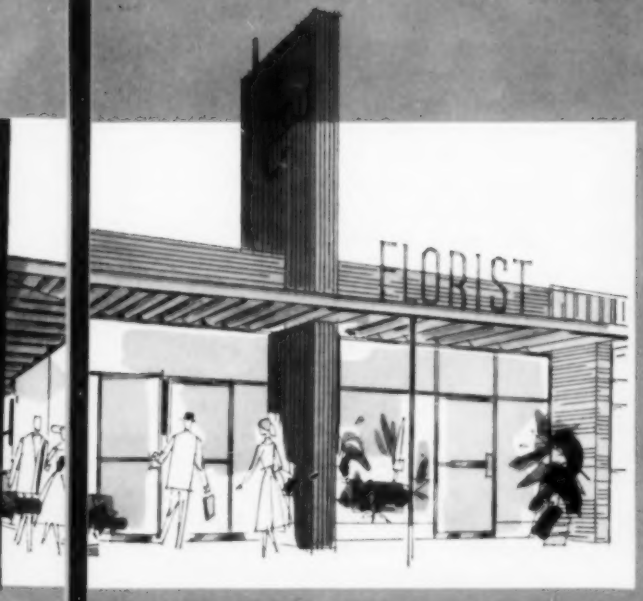
sun control products

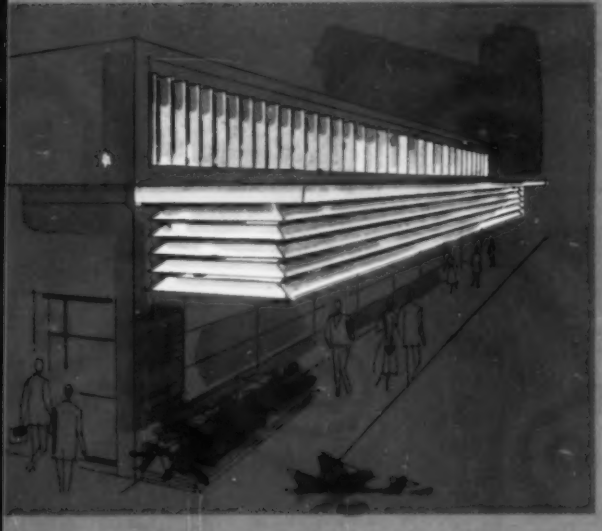
Rainy or blistering hot weather is an asset to the fortunate merchant who has protected his walk with a Kawneer Canopy. People run for protection, practically into his arms. Kawneer K-louvers, too, shield workers and students from hot sun rays and glare. Versatile and adaptable to all types of windows, buildings and latitudes, Kawneer Sun Control products are quickly erected and complement the building design.

metal wall products

A pioneer in the fabrication of aluminum for buildings, Kawneer furnished many famous structures with windows and spandrels. Today the skills and abilities that went into the windows and spandrels of the Mellon Institute, the St. Paul City Hall and Court House, and the Boulder Dam Power House are still at work furnishing modern structures with a complete service of "one responsibility," from engineering through erection.







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reviews

(Continued from page 214)

nite and individualistic viewpoint—Wayne Andrews is always taken in by America's vitality, as it has expressed itself in architectural experimentation. Even those who would not agree with the author's evaluations and criticism must admit that there exist few books on architecture and—even more significant—on the history of American taste, which would give deeper insight in their mutual integration. In brief, it is a wonderful book to read and to study; stimulating and, this reviewer believes, thoroughly convincing.

Quite in contrast to Andrews' more subjective book, the late Emil Kaufmann wrote, in the best tradition of thorough European scholarship, a study on the Baroque and Post-Baroque architecture of England, France, and Italy, for which Joseph Hudnut contributed a warm and understanding foreword. The architectural historian will be most interested in the translucent definitions of individual periods; the modern architect in the chapter "Art and Geometry," most characteristic of French architecture of the last third of the 18th Century, especially of Etienne-Louis Boullée. Here he points clearly to the long line of ancestry to which men like Buckminister Fuller and the followers of the so-called Cubist movement in architecture owe their basic ideas. A fine analysis of what an architectural "system" means is basic to Kaufmann's approach. "There are profounder reasons for a change of system than for a change in forms . . . systems depend wholly upon, or, better, derive directly from, the general mental attitude of a particular era. Since attitudes change unceasingly, the architectural systems are also in a state of unceasing flux. . . ." These remarks introduce the part on Italy where a chapter on "Italian Theories from Alberri to Lodoli" deals with many surprising variations in Ital-

(Continued on page 222)

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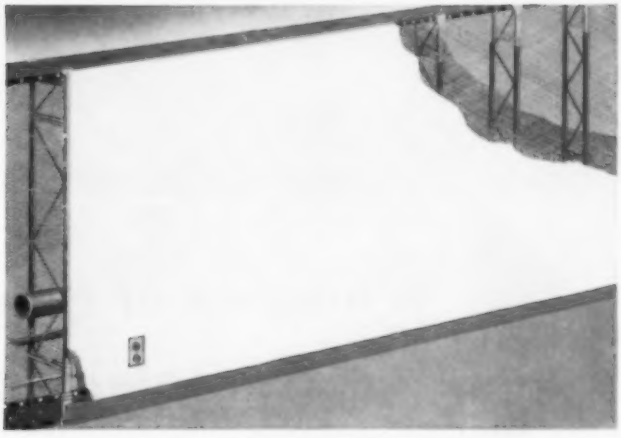

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LATH AND PLASTER

Bristol School, Webster Groves, Missouri, where Ceco-Sterling Aluminum Projected Windows were used. Architects: Hellmuth, Obata & Kassabaum. Contractor: Albers Construction Company.

Windows of quiet beauty complement an award-winning

Ceco-Sterling Aluminum Projected Windows with Tubular Vertical Mullions Achieve Narrow Sight-Lines... Afford Maximum Daylighting... Reduce Maintenance Costs

It's a combination of many things—some aesthetic —some functional—that determines the winner of a top award in a national school competition. So it was with the Bristol School, Webster Groves, Missouri, which received an award of merit from the American Association of School Administrators. The aim of architects Hellmuth, Obata & Kassabaum was to create an attractive environment centered around the physical and psychological needs of young children. Much thought was given the site and building position. Good illumination came in for careful study, and here Ceco-Sterling Aluminum Projected Windows were used for maximum daylighting. Ceco engineers worked closely with the architects in developing a tubular vertical mullion to achieve an extra narrow sight-line. The clean, neutral tones of aluminum windows combined pleasingly with gay colored panels in the entrance. All in all, the windows complemented the architectural concept. Since aluminum never needs painting, maintenance savings were assured. So—on your next project, consider Ceco's broad line of windows. They offer the variety and craftsmanship to meet your window requirements.

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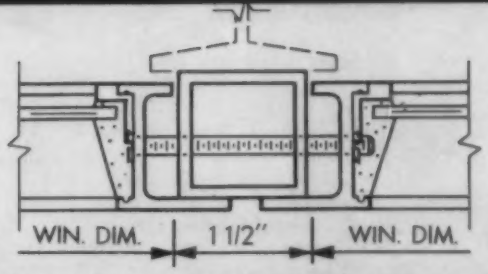
Striking effect of narrow mullions on vertical sight-line is illustrated in this view showing the entrance canopy and primary classroom wing of Bristol School.

school . . .

The neutral tone of Ceco-Sterling Aluminum Windows blends with panels of red, blue and yellow to provide a striking entrance for the Bristol School.



Mullions, being only 1½" wide instead of the usual 2⅛", do not compete with the sight-lines established by the building's 10-foot module design.

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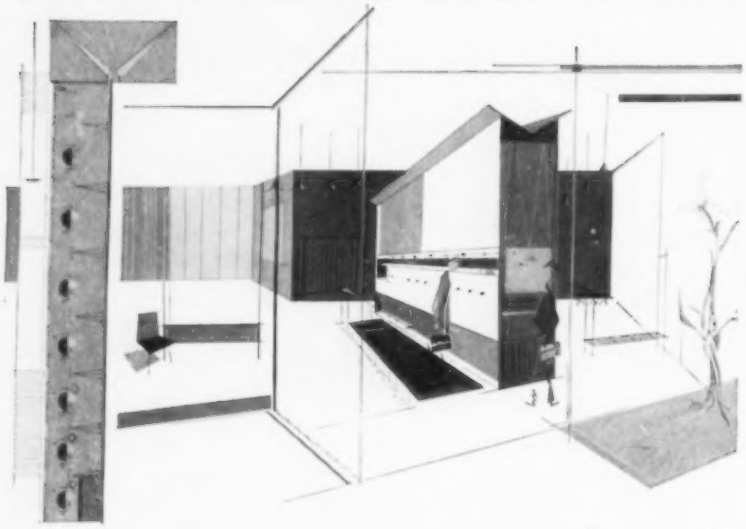
MARS outstanding design **SERIES**



chef-less restaurant

This concept of Sue Vanderbilt, Pratt industrial-design graduate now designing GM auto interiors, would assemble a whole meal and cook it by microwave in a few seconds. Customer would merely check picture menu, insert money, push buttons. By the time he reached the far end of the counter the meal would be waiting, piping hot. All components already exist.

Many designs that will make news tomorrow are still in the "bright idea" stage today. No one knows which will flower into reality. But it will be important in the future, as it is now, to use the best of tools when pencil and paper translate a dream into a project. And then, as now, there will be no finer tool than Mars—sketch to working drawing.

Mars has long been the standard of professionals. To the famous line of Mars-Technico push-button holders and leads, Mars-Lumograph pencils, and Tradition-Aquarell painting pencils, have recently been added these new products: the Mars Pocket-Technico for field use; the efficient Mars lead sharpener and "Draftsman's" Pencil Sharpener with the adjustable point-length feature; and — last but not least — the Mars-Lumochrom, the new colored *drafting* pencil which offers revolutionary drafting advantages. The fact that it blueprints perfectly is just one of its many important features.

The 2886 Mars-Lumograph drawing pencil, 19 degrees, EXEXB to 9H. The 1001 Mars-Technico push-button lead holder. 1904 Mars-Lumograph imported leads, 18 degrees, EXB to 9H. Mars-Lumochrom colored *drafting* pencil, 24 colors.

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at all good engineering and drawing material suppliers

reviews

(Continued from page 218)

ian architecture. Thus, for instance, he sees in the porch of Brunelleschi's Pazzi Chapel an anticipation of the later Palladian window. This is as poignant an observation as his concept of self-containment, which always prevails in English architecture.

Kaufmann states that Gropius tries to explain his experiments very much the same way as did "the visionaries of about 1800." Blank walls, flat roofs, and unframed windows can be found here and there, and the historical continuity becomes obvious. The new order of constituent parts, so characteristic of our modern architecture, according to Kaufmann, goes back to the architectural individualists of French Classicism, and is in its basic attitude not too far from the "scholastic regularity" of the end of the 18th Century in England. It is impossible in a brief review to do justice to the scope and fulfilment of this highly scholarly work which will be the basis for further studies on the French and English 17th and 18th Centuries for many decades to come.

As said before, there are three ways of dealing with architectural history: "In my Father's house are many mansions." The reviewer regrets that while two of the reviewed books represent high achievements in their respective approaches, the representative of the textbook type does not correspond to their level.

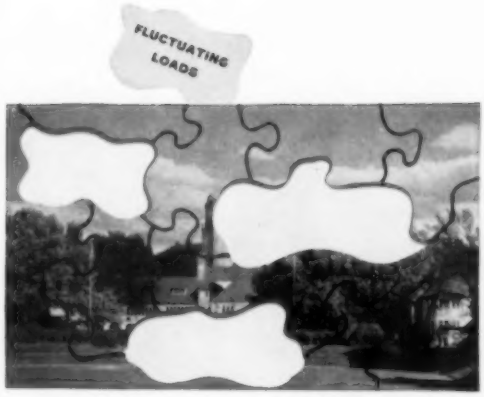
PAUL ZUCKER

the farmer's problem

Farm Service Buildings. *Harold E. Gray. McGraw-Hill Book Co., Inc., 330 W. 42 St. New York 36, N. Y., 1955. 448 pp., illus., $7.50*

The old red barn of story and song —and Grandma Moses—is a familiar sight, and to those of us with a flair for the picturesque, long may it be so! However much its charm may appeal to the beholder

(Continued on page 227)



HOW A JIGSAW HEATING PUZZLE WAS SOLVED

KEWANEE reserve plus rated boilers

MET SCHOOL HEATING NEEDS

A jigsaw puzzle heating problem . . . that's what it looked like at the Cranbrook School for Boys, Bloomfield Hills, Michigan, since the heating needs were so varied. But every puzzle piece fell into place when Kewanee Reserve Plus Rated Boilers were installed, because all heating needs were solved. Here's the way it worked:

Problem 1: Limited boiler room.

Solution: Two compact Kewanee Scotch Type Boilers with 50% reserve power guaranteed adequate heat under all conditions.

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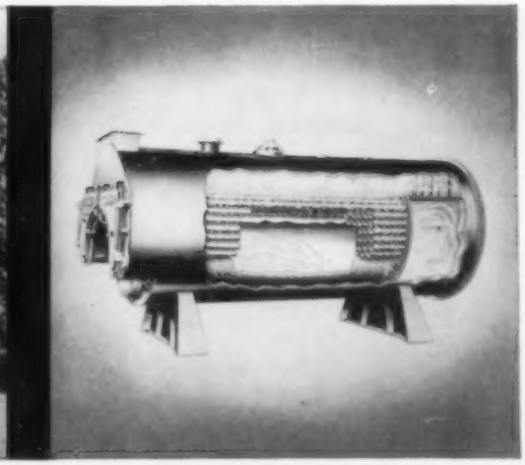
Solution: Kewanee Boilers had sufficient reserve to assure a fast, dry steam when needed to give quick heat.

Problem 3: Low operating—maintenance costs.

Solution: Since Kewanee Reserve Plus Rated Boilers certify 50% extra power built in, they operate at "cruising speed." Result—less fuel used, less wear on boiler, greater efficiency delivered.

Kewanee Reserve Plus means boilers are rated on nominal capacity, with adequate power to take care of present needs, emergencies and future expansion. Boilers rated on maximum capacity are inadequate for today's fast growing school needs. Next time select Kewanee Boilers.

Cranbrook School for Boys, Bloomfield Hills, Michigan
Heating Contractor: Laing Plumbing & Heating Company, Pontiac, Michigan
Engineer: Snyder & McLean, Detroit, Michigan



Kewanee LM-800 Series for 15 lbs. steam or 30 lbs. water installed in the Cranbrook School for Boys.

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KEWANEE BOILERS

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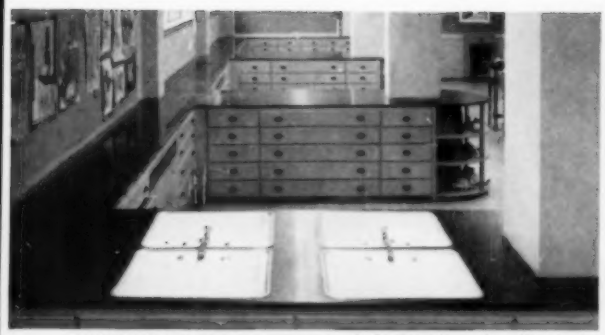
BUILT-IN WARDROBES and cabinets of fine birch Weldwood make for neatness and good looks in the South School, New Canaan, Conn. Units are backed with fir Weldwood. Beautiful natural wood built-ins like these provide warm, informal atmosphere for any school location.

Functional built-ins add beauty, save on

MOBILE BOOKRACK of maple Weldwood also provides storage space in Greenville School, Scarsdale, N.Y. Back is of open-shelf construction.

RED OAK Weldwood Plywood makes beautiful sliding cabinets in kindergarten of Midland School, Rye, N. Y. Sink top and splash-back are blue-green Micarta.

SLIDING CLOSET doors and wall paneling are made of Novoply throughout Unqua School, Massapequa, L. I. Novoply is available in pine or California redwood.



BLACK MICARTA covers tops of fir Weldwood cabinets in classroom in Shades Valley High School, Birmingham, Ala. Used also in library, laboratories, kitchens and art room.

DUAL-PURPOSE teacher's desk and mobile storage cabinet is made of good-looking, durable Novoply. Foster A. Begg School, Manhattan Beach, Calif., has one in each classroom.

SLIDING PANELS cover built-in Weldwood Chalkboard, allowing one section at a time to be uncovered for quizzes and exams. Darien Junior High School, Darien, Conn.

LOW-COST, crack-free Novoply® makes superior classroom cabinets in Lyncrest School, Fairlawn, N. J. Cabinet tops are covered with Micarta in colorful Mardi Gras pattern.

costs, save on space, cut maintenance

Here are 8 practical Weldwood ideas for increasing the day-to-day value and utility of every room in a school

Built-ins solve some of the toughest problems facing the school planner. On these pages, you see a few of the hundreds of ways in which built-ins, constructed with Weldwood plywood, literally stretch school budgets.

FUNCTIONAL BEAUTY. There's nothing like the wonderful warmth of real wood for desks, wardrobes, racks, cabinets, bookcases. You get away completely from that antiseptic "institutional" look. Built-ins made of Weldwood increase class efficiency and organization, make each room look more personalized, more cheerful. And for especially hard usage, beautiful Micarta cabinet tops have proved in thousands of installations that they "can take it."

COST PICTURE. Weldwood costs less to install than ordinary materials, and built-ins of Weldwood often save enough on space alone to pay for the entire installation! Every square foot of floor space saved by built-ins pays the material cost for about 14 to 20 square feet of Weldwood plywood.

LOWER MAINTENANCE. Weldwood eliminates the need for costly periodic redecoration; waxing keeps Weldwood looking fresh and new indefinitely. And Micarta's extremely hard smooth surface resists scratches, won't dent or chip, wipes clean with a damp cloth.

DON'T FORGET WELDWOOD CHALKBOARD—its porcelain-on-steel* face attracts magnets for posting papers and for visual aid sessions, its soft green surface is easy on young eyes, and it *never* needs refinishing.

LIFETIME GUARANTEE. Weldwood Plywood and Chalkboard are guaranteed for the *life of the installation.*

REMODELING? Many communities find that their problem is twofold: new construction *plus* revamping of existing facilities. Built-ins of Weldwood help convert out-of-date classrooms, laboratories, teachers' lounges and gymnasiums.

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IMPORTANT NEWS ABOUT THE NEW GRADE NAMES*

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MARCH 15 1956

Orders placed under Rule #14 may be graded and stamped under that rule *for a limited period* after March 15. This is to accommodate stocks in the process of manufacture or on hand at yards or mills.

All specifications for structures to be built after March 15, 1956, should be under the new rule, Rule #15.

If you have not received your free copy of Rule #15, write to West Coast Lumbermen's Association, 1410 S. W. Morrison, Portland 5, Oregon.

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reviews

(Continued from page 222)

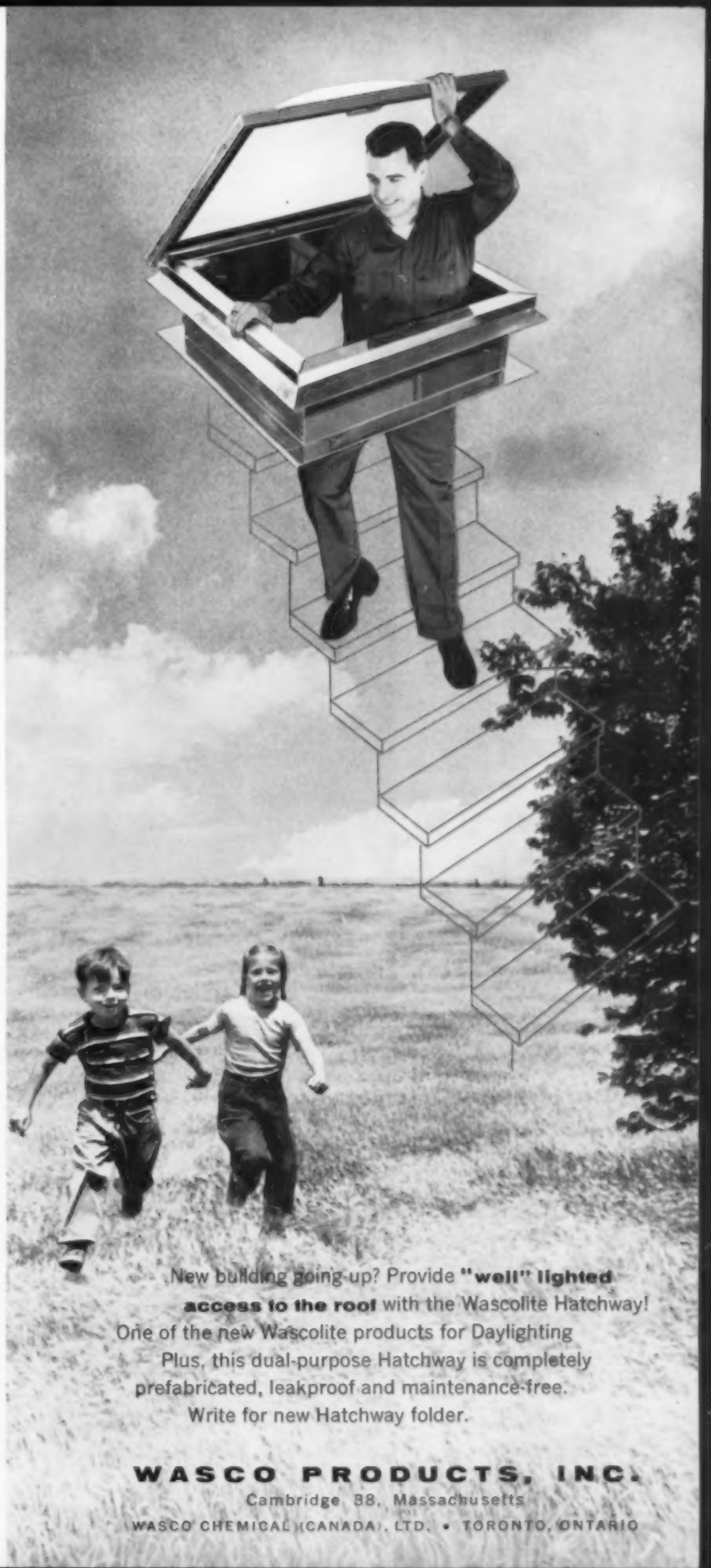
as a subject for brush or camera, to its owner, handicapped by its inadequacies to meet the realities of the mechanized age—little enthusiasm remains for the esthetic.

Sad to relate, the modern farm structure of our more progressive farm today is no architectural gem. This is understandable w en we recognize that in the planning of the service buildings of the farmstead, that overworked cliché, "form follows function," has been applied literally; and whatever architectural merit may result is a happenstance. The controlling design factors have evolved around the conditions of present-day farming.

In this push-button age, much study has gone into motion-saving in our daily occupations. The farmstead, with rare exceptions, is the product of a heterogeneous growth, since few dirt farmers of our era have been in the position to build a carefully integrated farmstead. The farmer's problem has been one of repair and remodeling, and as he builds but once in a generation, the service buildings have not kept abreast of the rapid development in farm technology. For the machine age has come to farming only in recent years.

When we realize that the farmer spends up to half of his working hours in the farmstead, step-saving becomes important. With the increasing scarcity of farm labor, mechanical devices have been developed to eliminate jobs and facilitate self-help. Operations have been centralized and this, in turn, dictates circulation. Space-elements are geared closely to the over-all efficiency of the circulation. As a consequence, the opportunities offered to the architect for an artistic grouping are of necessity restricted. To the architect interested in the design of farm buildings, the achievement of architectural merit might seem to present a formidable problem.

(Continued on page 232)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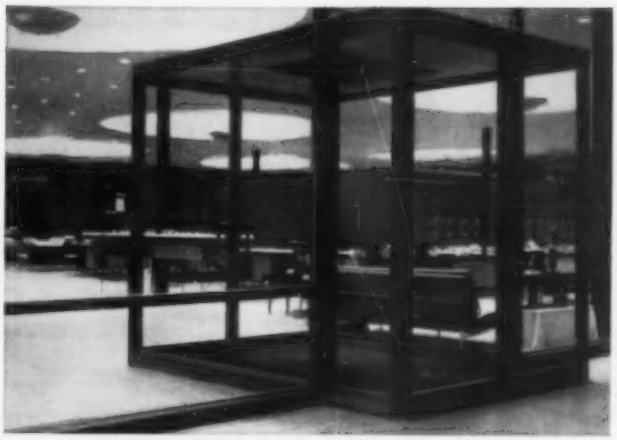
ARCHITECTS EERO SAARINEN & ASSOCIATES of Bloomfield Hills, Michigan, have achieved impressive originality in designing the Irwin Union Bank and Trust Company building in Columbus, Indiana. Adding importantly to the beauty, advanced architectural planning, and practical advantages of this structure is Pittsburgh's Twindow®. These window units, with insulation *built in*—were utilized for all exterior glazing.

Unique Bank Building in Columbus, Indiana,

makes telling use of

PITTSBURGH GLASS

SHOWN HERE ARE the drive-up tellers' windows, glazed with Pittsburgh's Multiplate®. This laminated heavy plate glass is bullet-resisting—a feature which makes it ideal for applications of this kind.



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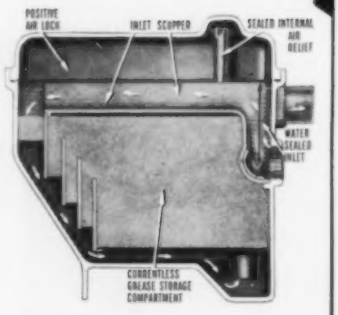

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BOOSEY

reviews

(Continued from page 227)

But architects throughout the ages have always managed to solve their problems.

The golden age of farm building, as those of us old enough may remember, occurred during the infant years of the 20th Century. The estates of the landed gentry gave the architects a field day. Since then we have gone off the gold standard, but what about the silver lining? The opportunities for the ingenuity of the designer are always with us. Witness the emphasis on design in kitchen equipment, in our cars; in fact, everything we make and sell has eye-appeal.

The various buildings necessary for their several uses are capable of a variety of groupings which afford the architect wide scope for his imagination. The towers of the silo and water tower, the long sheds for the storage of farm implements and machinery, the low buildings for poultry, hogs, and beef cattle, the dominating structure for the storage of hay, grain, and straw in effective combination could be made into as pleasing a picture as any Currier & Ives.

Prof. Harold E. Gray of Cornell University, in his excellent book, *Farm Service Buildings*, has made an exhaustive study of the farmer's problem. Despite the chapters devoted to detailed information on structural design, this is not a do-it-yourself book. Obviously written as a textbook for the agricultural student, it creates in the mind of the future farmer an awareness of the necessity for carefully analyzed planning in the structures that form the farmstead. It impresses upon the reader that the planning and construction of a farm building is a complex operation.

To the architect, interested in this field, the book will prove invaluable. The sections discussing the functional planning of the major types of buildings important to farming

(Continued on page 242)

● SLOTTED-NECK construction is an original ABOLITE development. It gives you a modern lighting fixture that stays cleaner longer, provides more up-light and results in longer lamp life by reducing the operating lamp temperature. You get better, less-glaring light, and maintenance is reduced to an absolute minimum.

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What's the most exciting thing in home planning today? Our fresh new attitude to color, of course! And particularly in the bathrooms where color is so important to smart, attractive and salable homes.

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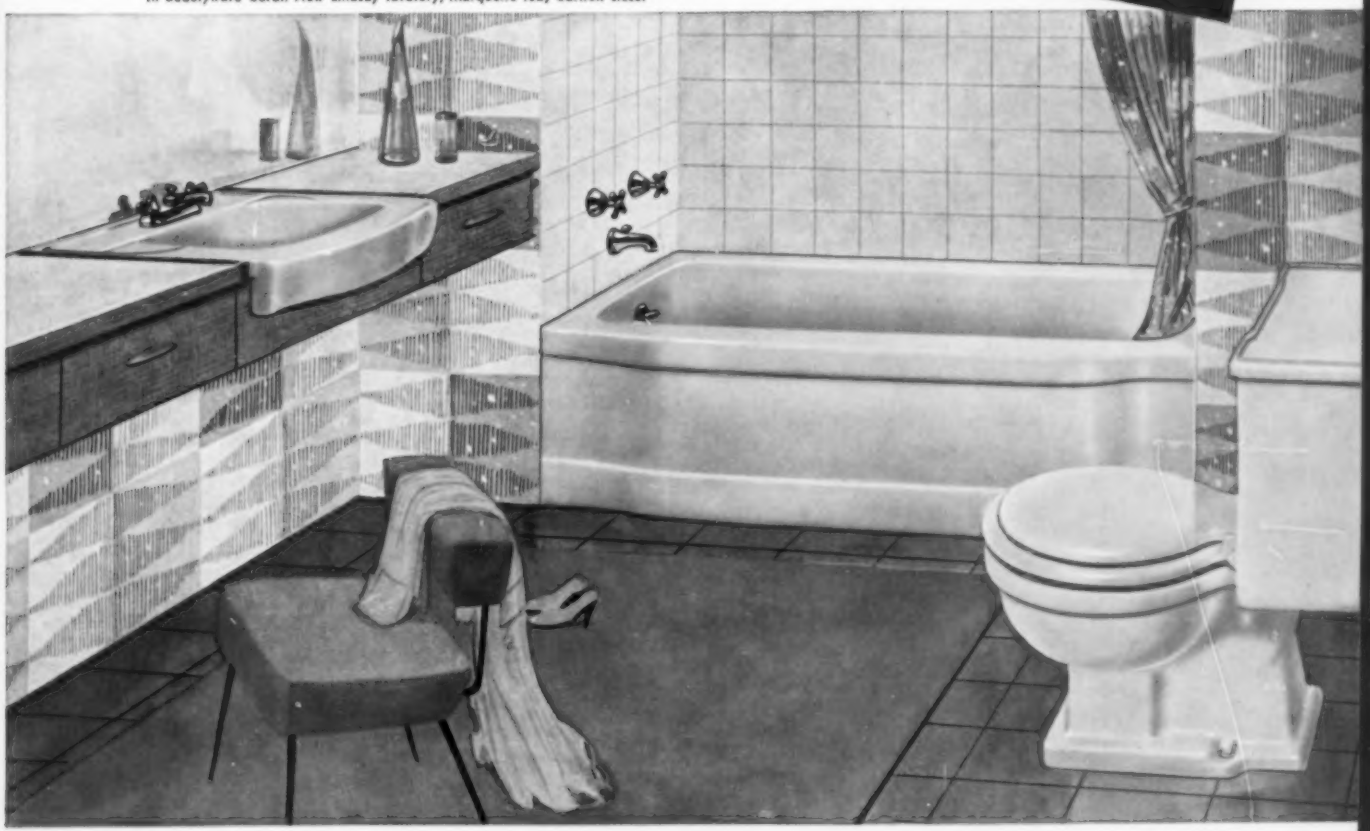
And Beautyware fixtures all have a durable finish that stays bright and easy to clean. In every way Briggs Beautyware will reflect your good taste in colors — and quality in bath fixtures. *Briggs Manufacturing Co., 300 Buhl Building, Detroit 26, Michigan.*

In Beautyware Coral: New Lindsay lavatory, Marquette tub, Carlton closet



Color decorating styled by Howard Ketcham, nationally famous color engineer. Choose decorations and accessories for Beautyware coral fixtures from any of these other compatible colors.

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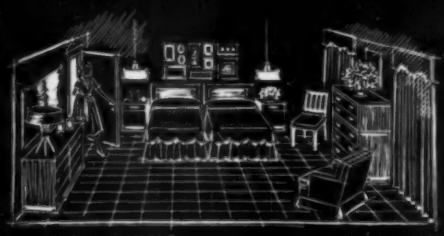

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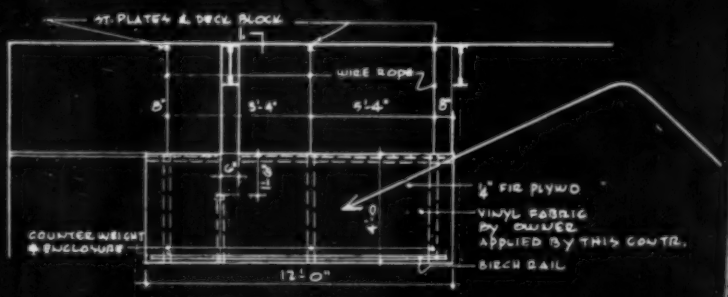

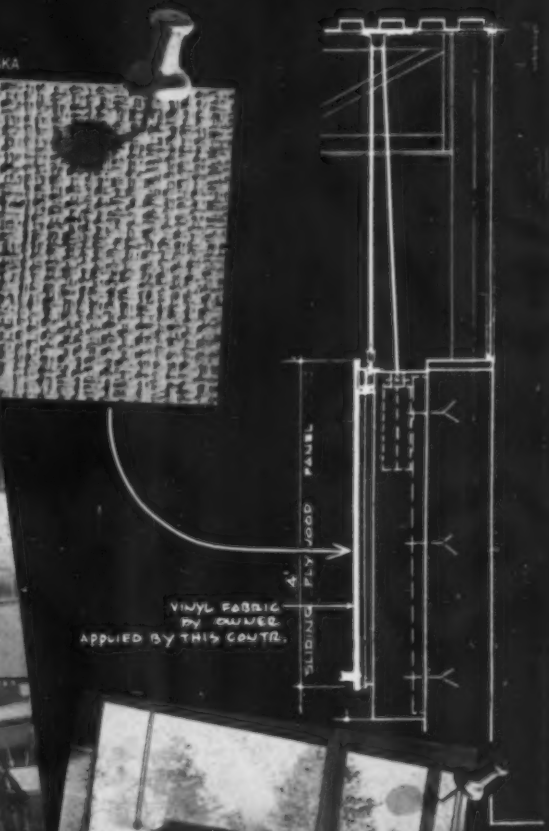

Applications of Vicrtex V.E.F.* Fabrics at the Hollow Tree School, Darien, Conn. Ketchum, Gina & Sharp, architects.

here's how

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In hundreds of new schools, where walls serve several purposes, architects have specified Vicrtex for functional versatility as well as beauty. Vicrtex V.E.F.* Fabrics cover walls and panels, bulletin boards, tack boards, serve a variety of other applications. Easily cleaned, Vicrtex is stain, fire and soil resistant, won't fray, chip, peel or scratch, is practically indestructible. Available in 35 fade-resistant House & Garden colors, over 24 three-dimensional patterns.

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Southridge & Washington Schools, Charlotte, Mich. (Warren S. Holmes)
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HANDLOOM

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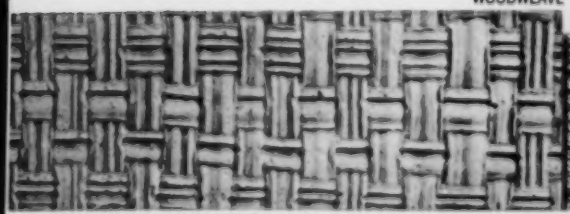
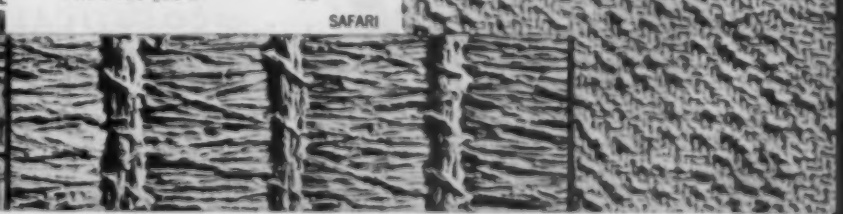


SAFARI



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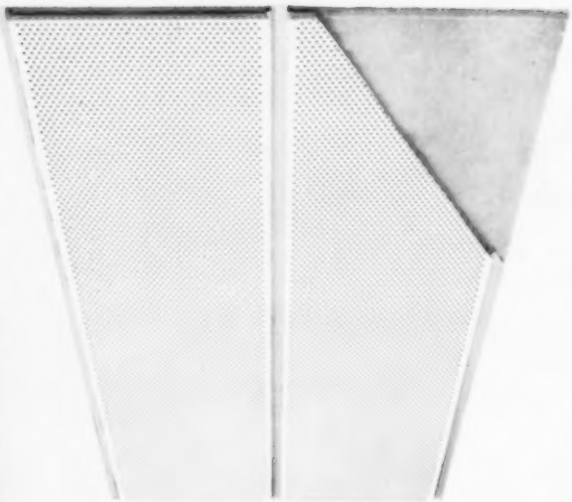
Panelcoustic panels fit snugly around air diffusers like the ones shown above.

Complete Gold Bond Panelcoustic ceiling can be installed in hours. Overhead utilities are out of the way, yet instantly accessible.

Big panels are supported on Tee carrying runners and can be positioned with finger-tip ease. Installed cost is comparable to other incombustible acoustical systems.



GOLD BOND Panelcoustic offers you many advantages over other acoustical ceilings. Big 2′ x 4′ panels of perforated metal go up fast over large ceiling areas. Panelcoustic can be easily cut to size or shape to fit any ceiling irregularity (see illustration). For opening up large access areas to service overhead utilities, panels are simply *pushed up and out* of Tee carrying runners. Utilities are hidden when panels are in place.

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Panelcoustic offers good looks, as well as efficient sound absorption. Inverted ribs on each panel form a distinctive channeled pattern that streamlines *and* strengthens your building interiors. The baked enamel finish can be easily wiped clean with soapy water. If a change in color scheme is desired, Panelcoustic may be repainted—without affecting acoustical efficiency.

For complete information on Gold Bond Panelcoustic Ceilings, refer to Section 11aNa of Sweet's Catalog or call your local Gold Bond Acoustical Contractor. He's qualified to give you valuable advice in your acoustical planning.

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mural in *Suntile* ceramics

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In this new Arizona high school cafeteria a mural in Suntile Ceramics, 100 ft. long by 10 ft. high, combines fresh decorative interest and a durable, easily maintained surface.

Conceived by architect Edward S. Varney, and developed by the school's art students, the mural is based on colorful Navajo Indian motifs whose geometric forms could be readily reproduced in 2″ x 2″ unglazed, Satinized Suntile Ceramics. Colors are grey, black, white, turquoise, rose, yellow, jade green and red.

Mesa High School, Mesa, Arizona • Edward S. Varney, architect

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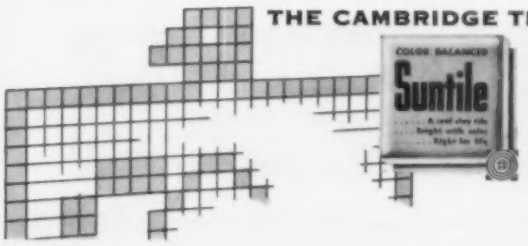

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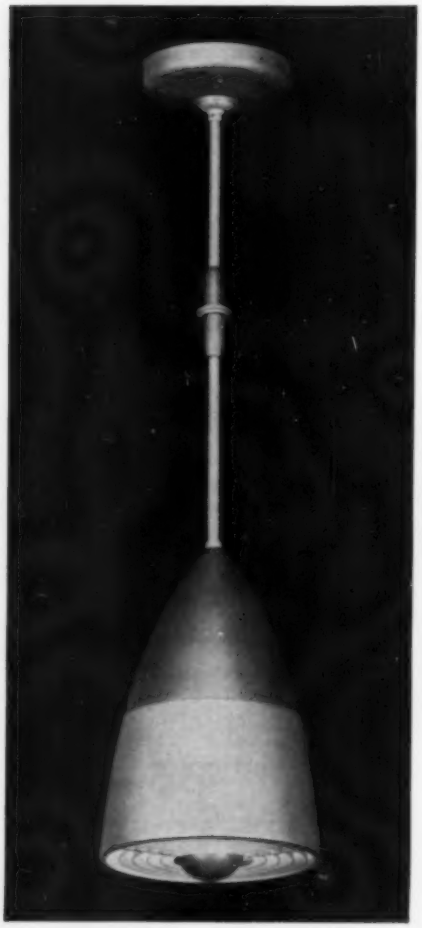

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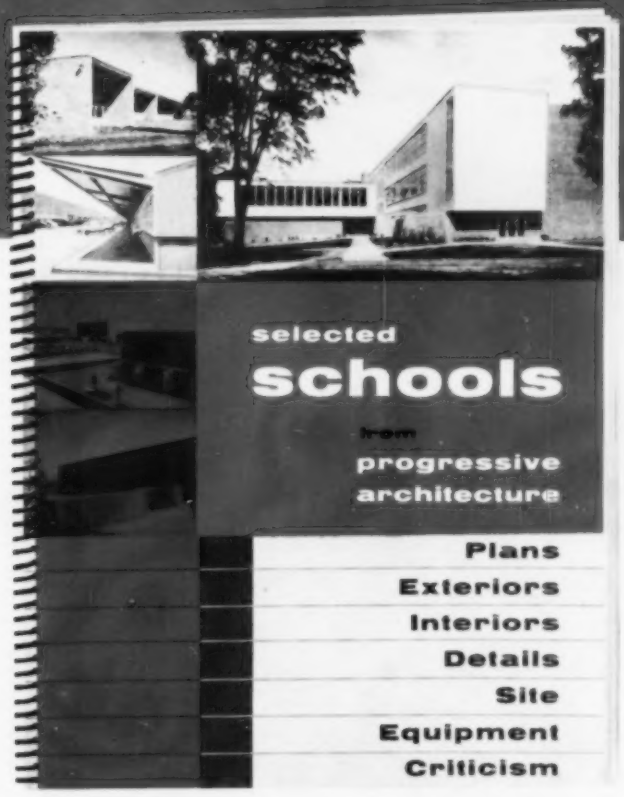

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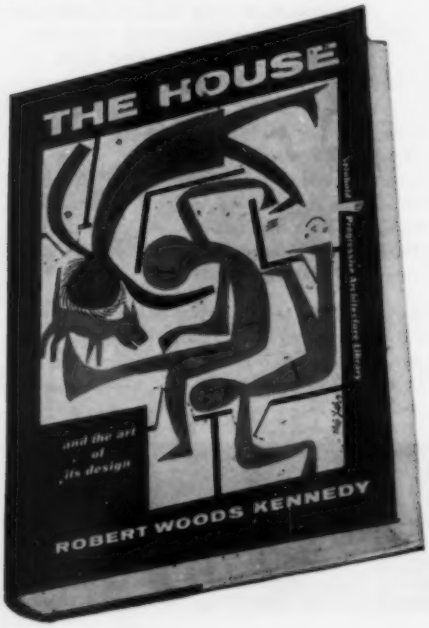

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The architect-designed house as distinct from all others

2 **SILHOUETTES**
The people who live in houses and what they want of them

3 **FAMILIES**
People together form a family which in turn makes still other demands on the house

4 **LIVABILITY**
How people's and families' demands get translated into a scheme for the house

5 **ACTIVITIES**
How what we do in houses should affect their plan, furniture, arrangement and equipment.

6 **RELATIONS**
What kind of people are architects and clients, and how do they get along together?

7 **PROCESS**
How the architect and client react to the crises of the building period

8 **STYLE**
A dim view of both Modernism and Traditionalism, and a plea for a simple contemporaneousness

9 **ENVIRONMENT**
How the surroundings of a house should affect its style

10 **SITE**
How the site of the house should affect its plan and concept

11 **STRUCTURE**
The structure of the house is like the human body, and should be conceived of as such

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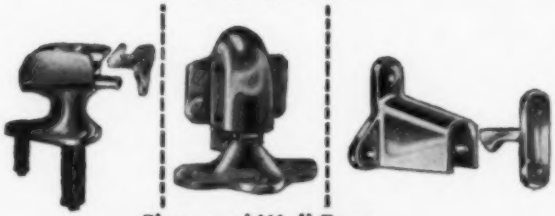

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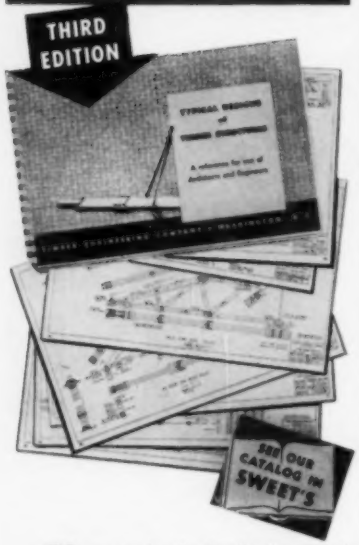

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(Continued from page 232)

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school needs reviewed

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(Continued on page 246)

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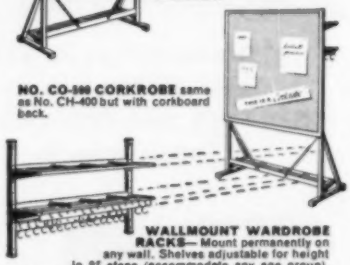

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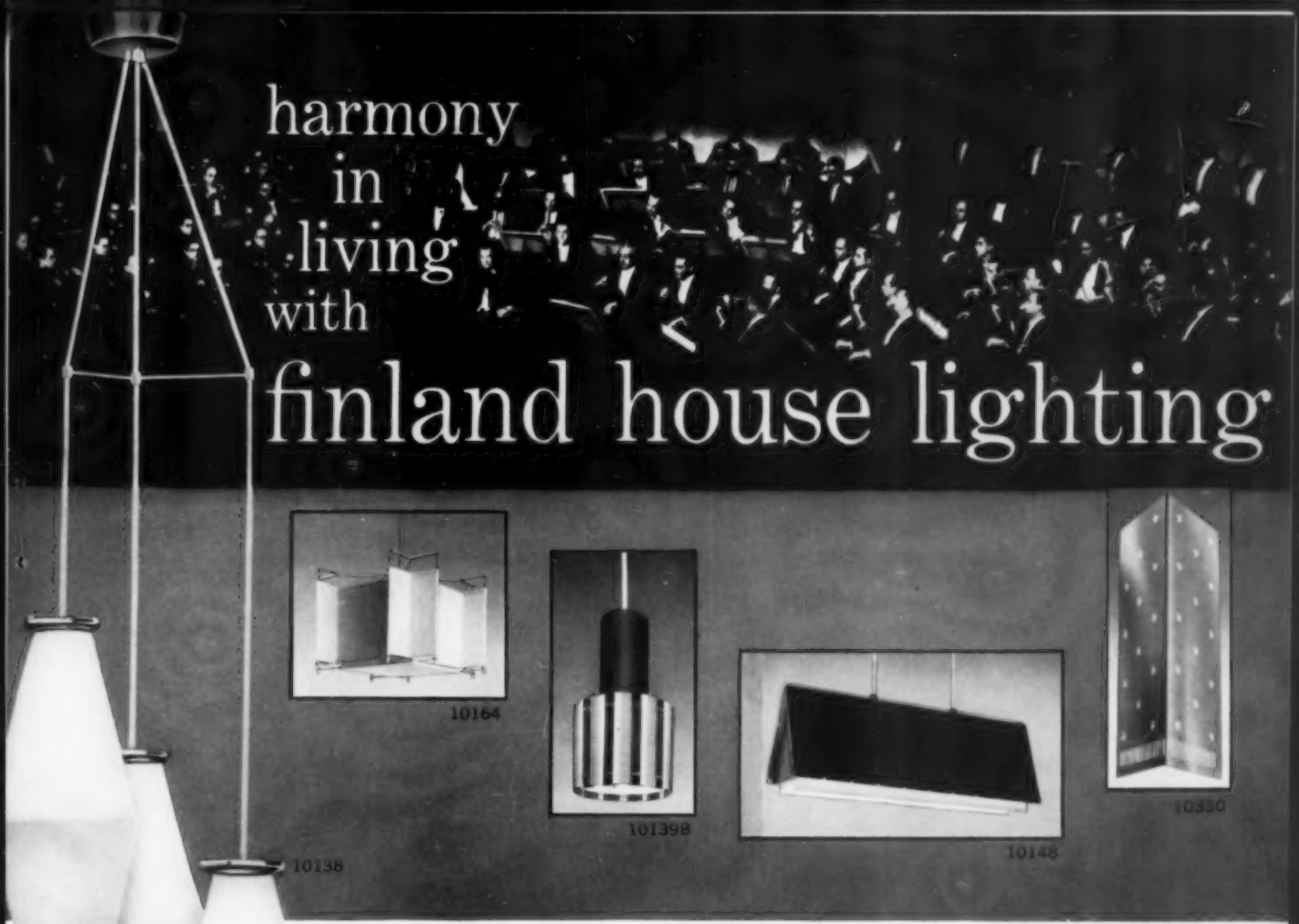

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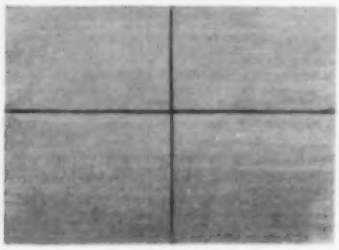


EASILY HANDLED—Roofers are increasingly endorsing Fesco's exclusive, fast laying 24" x 36" size because it is increasing daily production and improving workmanship wherever used.

FESCO®

ROOF DECK INSULATION

BOARD

hermetically sealed Perlite composition guards against moisture and fire

CHARACTERISTICS

The basic ingredient of Fesco Board is Coralux Perlite, expanded and annealed at 1700°F to form impervious, air-entrained beads of glass. It offers these unique properties:

INCOMBUSTIBLE — Reliable, authenticated laboratory tests show Fesco Board to have a flame spread factor of only 20.5, and smoke contribution factor of 0

PERMANENT — Expanded Coralux perlite, the principal ingredient of Fesco Board, is dielectric, chemically inert and non-absorptive. As a result, Fesco Board will not rot, mildew, deteriorate. Mineral composition will not support organic life of any type.

STRUCTURALLY STRONG — Independent laboratory testing has proved Fesco Board to be compressible, yet essentially stable. In actual compression tests, compressed to ½ its thickness, Fesco Board withstood 170-lbs. p.s.i. and to prove its inherent strength withstood 55-lbs. p.s.i. of transverse pressure.

INSULATING VALUE — Fesco Board has a K-factor of .31 @ 75°F.

LIGHTWEIGHT — Easy-to-handle board units measure 1" x 24" x 36" and weigh approximately 9 lbs. per square foot — about one half the weight of most existing insulation boards.

MOISTURE RESISTANCE TEST DATA:
Fesco Board has no capillary or wick-like attraction for moisture as do fibrous materials. Moisture resistance tests by a nationally known laboratory read as follows:

Thickness Inches	% Absorption By Volume	
	2 Hour	24 Hour
1	0.5	1.4

From 0 to 100% relative humidity no volume changes experienced in Fesco Board.

NO BETTER BOARD AVAILABLE AT ANY PRICE

Developed *specifically* for roof deck insulation Fesco Board provides *all* the properties demanded by today's roofers and today's roofs. Here is the solution to moisture caused roof failures. Here is a continuous shield against fire and moisture. Here is new permanence. Yet, Fesco Board carries no price premium, imposes no special handling. Write us for samples and technical data. Test for yourself the properties which Schundler research has incorporated into this newest, finest roof deck insulation.

developed specifically for ***ROOFS***

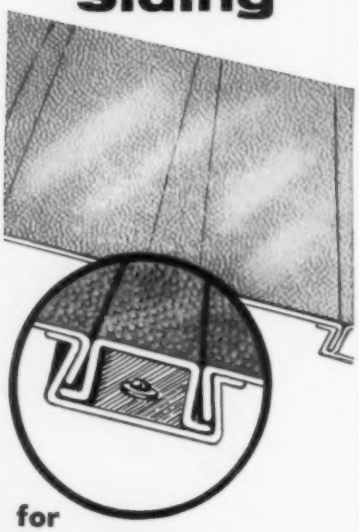
F. E. Schundler & Company, Inc.

504 RAILROAD STREET • JOLIET, ILLINOIS

RATED FIREPROOF MATERIALS, ACOUSTICAL & INSULATING

Developers and producers of incombustible mineral products including Ebbtone Acoustical Tile, Fesco Insulation Board, Coralux Acoustical Plaster, Coralux Perlite Aggregates, Mica Pellet Vermiculite, High Temperature Insulating Blocks and Insulating Cement.

MicroRold®
Stainless Steel
No-Fastner® Siding



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Building Construction and Remodeling

PERMANENT CORROSION RESISTANT WALL
requiring no maintenance.

LOW FABRICATION AND ERECTION COSTS
through unique design.

VARIOUS ARCHITECTURAL EFFECTS
may be achieved through a multitude of stainless finishes and textures.

LOW PRICE
cost less than other materials, such as aluminum, porcelized steel and brick facing because they do not offer as many advantages as stainless steel.

Write Today for our Descriptive "NO-FASTNER" FOLDER

Washington Steel Corporation
3-M Woodland Ave.
Washington, Pa.

reviews

(Continued from page 242)

cal and electrical equipment. The special requirements of specialized educational departments are reviewed in the light of current technical developments.

The roles of the school administrator, architect, and professional consultant are thoroughly explored; the proper use of building materials and equipment is brought up for detailed comment.

For the veteran professional school planner, little of this will be new; for the less experienced much is provided that will be new and helpful. The purpose and achievements of this Institute and of this publication are commendable. Similar commercial and industrial planning institutes should be promoted.

LAWRENCE E. MAWN

notices

competitions

TILE COUNCIL OF AMERICA, in co-operation with BEAUX-ARTS INSTITUTE OF DESIGN, New York, has announced a competition for design of a botanical garden. The competition is open to architectural students throughout the U.S. and will close May 1. For information write Beaux-Arts Institute of Design, 115 E. 40 St., New York 16, N. Y.

fellowships

Seven graduates of COLUMBIA UNIVERSITY's School of Architecture are presently studying in Europe on WILLIAM KINNE FELLOWS MEMORIAL TRAVELING FELLOWSHIPS. They are: LAWRENCE S. BRAVERMAN, Brooklyn, N.Y.; SYLVAN L. JOSEPH, JR., New York; PHILIP G. MCINTOSH, Bronx, N.Y.; GEORGE H. F. OBERLANDER, New York; WARKENTIN SCHROETER, Orono, Maine; GEORGE NICHOLAS VAN GELDERN, New York; and CHARLES P. WINTER, Tappan, N.Y. Two others, who will use their Fel-

(Continued on page 250)

Good pencils mean BETTER TRACINGS and superior PRINTS

When big projects are at stake, use *Graphite Saturated*

IMPORTED CASTELL

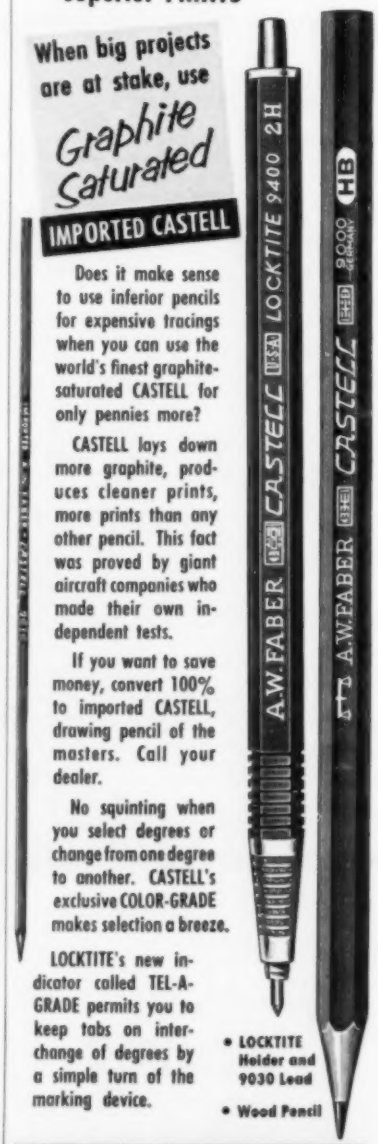
Does it make sense to use inferior pencils for expensive tracings when you can use the world's finest graphite-saturated CASTELL for only pennies more?

CASTELL lays down more graphite, produces cleaner prints, more prints than any other pencil. This fact was proved by giant aircraft companies who made their own independent tests.

If you want to save money, convert 100% to imported CASTELL, drawing pencil of the masters. Call your dealer.

No squinting when you select degrees or change from one degree to another. CASTELL's exclusive COLOR-GRADE makes selection a breeze.

LOCKTITE's new indicator called TEL-A-GRADE permits you to keep tabs on interchange of degrees by a simple turn of the marking device.



• LOCKTITE Holder and 9030 Lead
• Wood Pencil

A.W. FABER-CASTELL
PENCIL CO., INC. NEWARK 3, N. J.

Never before – a roof deck finish like this!

NOW—Bonderized base with baked enamel on Milcor Steel Roof Deck—a roof deck finish that can really take construction abuse.

Here is important news to everyone in the building industry. It is the full and complete answer to problems which have long been evident to architects and builders — problems arising from the punishment taken by roof deck in shipping, handling, hoisting, and use as a platform by tradesmen.

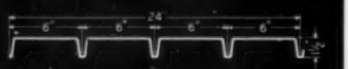
Milcor Steel Roof Deck is the only one in the field with this new, exclusive, far superior finish.

Bonderizing and baked enamel combine to produce the new glossy grey prime finish. The Bonderizing treatment defies corrosion, anchors paint to the metal, protects it against scuffs and scratches. The abrasion-resistant enamel is *baked on* over the Bonderized Steel. The result is the finest, most durable finish ever applied to steel roof deck — *and there is no increase in price!*

Milcor Steel Roof Deck with the new finish is described in detail in literature just off the press. Send for your copy. (Sorry, it's too new to be in Sweet's.)

MILCOR® Steel Roof Deck

NOW ... three different types of Milcor Steel Roof Decks

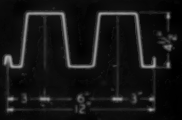


New "A" Section

The standard of the industry for close-rib decks now redesigned to full 24" width.

New "B" Section

Wide rib–distributes metal for greater structural efficiency — gives higher section properties per pound of steel.



New "C" Section

Carries normal roof loads over spans up to 20 feet! Offers greater freedom of design.

M-184

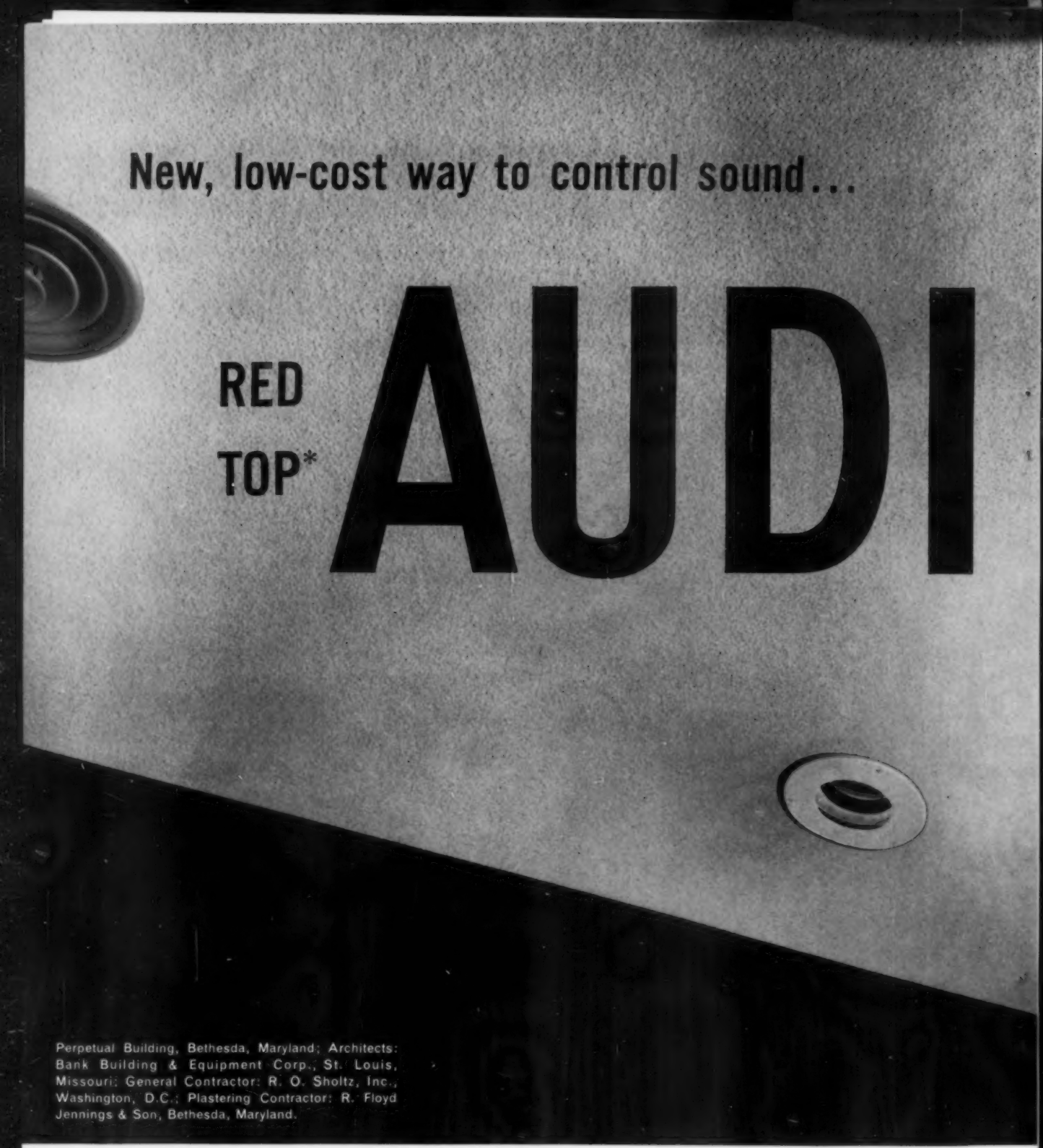
The steel panel at left was treated with Bonderite; the one at the right was not. Both panels were given a coat of Inland Epoxy Resin finish. After an "X" was intentionally scratched on them, the panels were subjected to the A.S.T.M. standard salt spray test for the same length of time. Note that in the finish over Bonderite, rust stopped at the scratch mark while it spread extensively over the plain steel panel.

INLAND

INLAND STEEL PRODUCTS COMPANY

DEPT. C-4049 WEST BURNHAM STREET • MILWAUKEE 1, WISCONSIN

BALTIMORE • BUFFALO CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DETROIT
KANSAS CITY • LOS ANGELES • MILWAUKEE • MINNEAPOLIS • NEW YORK • ST. LOUIS



Perpetual Building, Bethesda, Maryland; Architects: Bank Building & Equipment Corp., St. Louis, Missouri; General Contractor: R. O. Sholtz, Inc., Washington, D.C.; Plastering Contractor: R. Floyd Jennings & Son, Bethesda, Maryland.

USG
UNITED STATES GYPSUM

UNITED STATES GYPSUM

The Greatest Name in Building

*T. M. Reg. U. S. Pat. Off. † Noise Reduction Coefficient

COTE ACOUSTICAL PLASTER

N. R. C. 1 UP TO .60

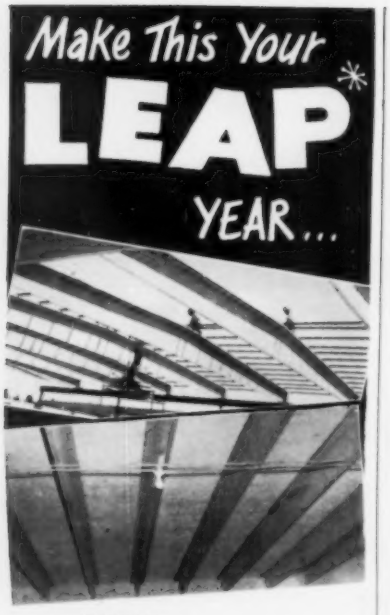
for spray or hand application

RED TOP AUDICOTE is a high-coverage plaster that forms a porous, sound-deadening ceiling surface. It's ideal for machine or trowel application . . . has exceptional bonding qualities.

AUDICOTE lends itself to almost any interior design, including curved contours and smoothly sweeping surfaces. It is recommended where beautifully textured, sound-absorbent, fireproof surfaces are desired.

AUDICOTE can be applied over gypsum basecoat plaster or other ceiling surfaces. It may be given a texture when machine applied; can be stippled, stipple-perforated, darbied, or floated. Satin White AUDICOTE gives light reflectance of .58, and may be spray-painted without appreciable loss of sound absorption.

For more information and details, see Sweet's Architectural Files, section 11/a; contact your U.S.G. Architects' Service Representative or Sales Representative; or write Dept. PA-2, 300 W. Adams St., Chicago 6. (AUDICOTE is also sold by Canadian Gypsum Company, Ltd., Toronto and Montreal.)



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LEAP*

Pre-Stressed

Concrete Roof Slabs & Tee Joists!

Yes, this can be your "LEAP" year for low cost, high quality roof construction if you specify LEAP *Prestressed* Concrete Roof Slabs and Tee Joists . . . they give post-free spans up to 60 feet to afford full use of valuable floor space from wall to wall!

LEAP *Prestressed* concrete products give you maximum strength at a fraction of the cost of conventional concrete construction methods . . . they are quick and easy to erect—a typical crew can erect and place 10,000 square feet of roof slabs per day!

Compressive strength in LEAP products is a minimum of 5,000 psi, running as high as 6,000 psi in some designs—about twice the strength of average concrete used in building today!

LEAP Franchised Casting yards are located in principal cities . . . fill in the coupon below for complete details!

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LEAP Concrete
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Lakeland, Florida Dept. B-5

Please send me complete details about LEAP *Prestressed* Concrete.

NAME .....

ADDRESS .....

CITY .....

STATE .....

notices

(Continued from page 246)

lowships upon completion of military service are: THOMAS K. NISBET, Watertown, N.Y., and JORGE VICTOR DAVILA of Puerto Rico.

KLAUS KATTENTIDT, winner of ST. LOUIS METROPOLITAN PLANNING FELLOWSHIP, at UNIVERSITY OF ILLINOIS, has enrolled, under the terms of the Fellowship, in that University for graduate study leading to a master's degree in city planning.

grant-in-aid

A grant-in-aid of $2400, awarded annually by J. C. NICHOLS FOUNDATION OF THE URBAN LAND INSTITUTE, will be made to a CORNELL UNIVERSITY graduate student for research in zoning administration during academic year 1956-57. Beneficiary will be selected by committee composed of Cornell faculty members.

honors and awards

PAUL KENNON, architectural student, Texas Agricultural and Mechanical College, won first annual Clay Products Student Scholarship Award. Awards were made to students of eight southwestern schools of architecture by CLAY PRODUCTS ASSOCIATION OF THE SOUTHWEST.

PETER LAND, London, England, now graduate architectural student at CARNEGIE INSTITUTE OF TECHNOLOGY, was recently awarded a ROYAL ACADEMY OF ARTS (London) prize for his design thesis of a concert hall.

graduate program

Graduate School of MIAMI UNIVERSITY, in conjunction with Department of Architecture, announces a one year graduate program leading to degree of Master in City Design. Enrolment will be limited to 15 students and applications should be made by June 1 to Dean of Graduate School, Miami University, Oxford, Ohio.

(Continued on page 254)

coordinated vista designs in color

FOR YOUR CONTRACT REQUIREMENTS

$102 RETAIL

L. $61, R. $22 RETAIL

L. $89, R. $35 RETAIL

$156.50 RETAIL

Vista's new Contract Catalog shows the 110 pieces in three complete lines. Coordinated in designs, materials and colors to give you utmost versatility. Moderately priced. Minimum maintenance. Wrought iron frames. Handsome woods. Natural or plastic tops in up to 11 colors. Professional discounts.

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1040 NORTH OLIVE STREET, ANAHEIM 5, CALIF.
QUALIFIED INQUIRIES ON YOUR LETTERHEAD INVITED

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Surface Applied Door Holder

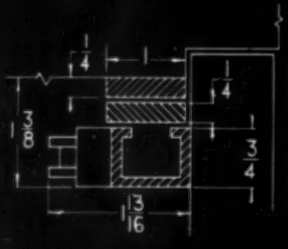
WITH AUTOMATIC

SAFETY RELEASE

SERIES 190V

Spring-cushion stops opening action at 90° or 110° as required. Free acting slide does not hinder the efficient control of overhead or concealed checking floor closers.

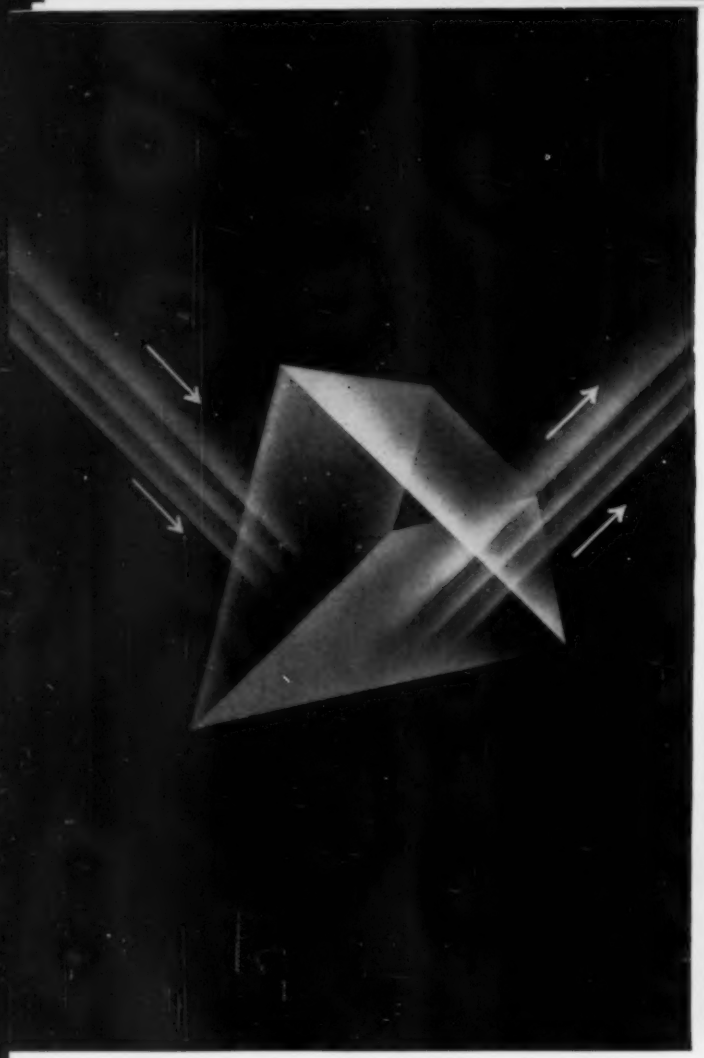
Control lever may be preset to hold door open. Tension of holding action may be adjusted to varying weights of doors and may be released manually or with a firm "push-pull."

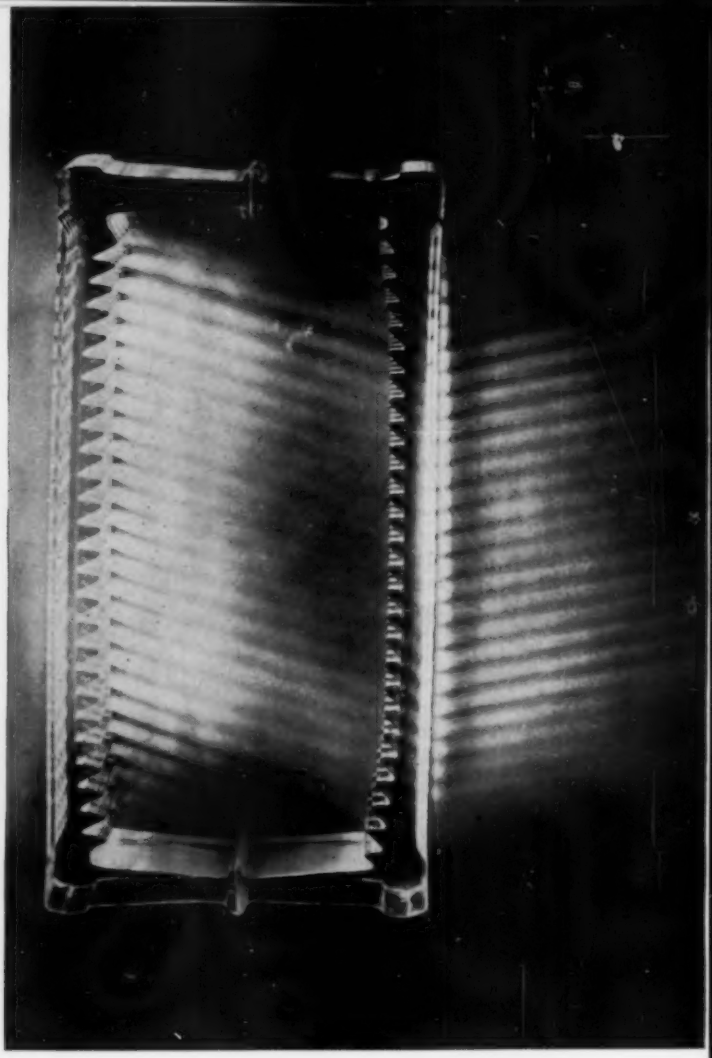


FINE SECURITY PRODUCTS SINCE 1857

SARGENT & GREENLEAF INC.

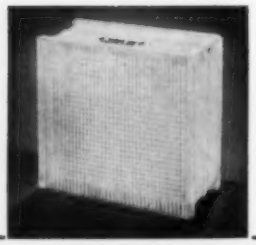
ROCHESTER 21, NEW YORK



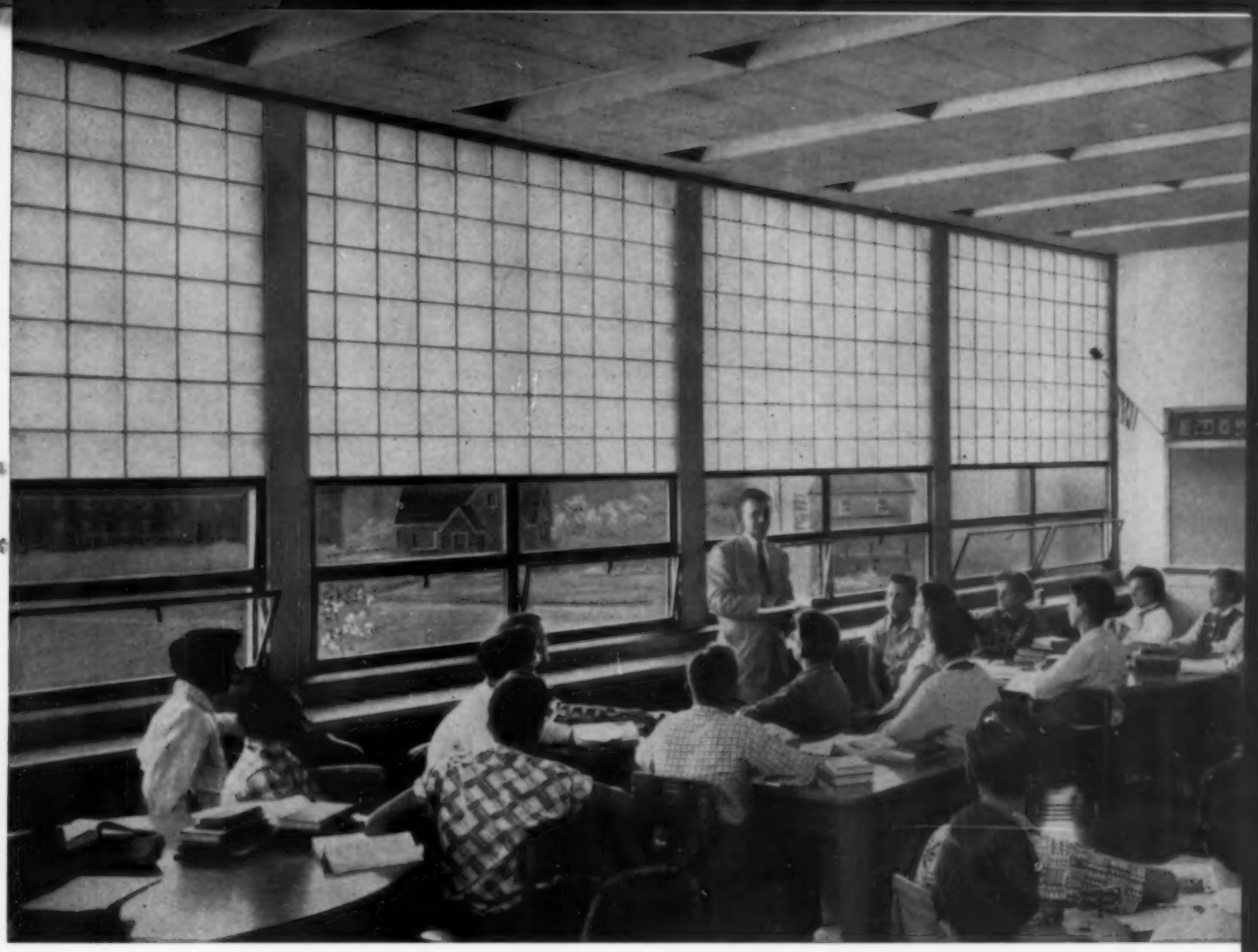


The principle of the optical prism . . .

applied to the design of Glass Blocks . . .



How PC Glass Blocks "discipline" daylight for classrooms is shown in the two illustrations directly above. The familiar light-bending characteristic of the optical prism is utilized in PC *light-directing* Glass Blocks. This is demonstrated in the cut-away section above. Light, entering from the left, is refracted by the internal prisms and directed upward to the ceiling. From here, the light is diffused evenly throughout the room. *Only prismatic Glass*



produces optically-controlled daylight that creates an optimum learning environment

Blocks provide this optically-controlled daylight. The result . . . *balanced* illumination that eliminates distracting glare and high-contrast shadows. Students see better—learn better.

Our brand new booklet on daylighting for schools gives complete information. Write Pittsburgh Corning Corporation, Department AC-36, One Gateway Center, Pittsburgh 22, Pennsylvania. In Canada: 57 Bloor Street West, Toronto, Ontario.

PC Glass Blocks

PITTSBURGH PC CORNING ®

Also manufacturers of FOAMGLAS® insulation

design by mc Philben

EDGE-LITS—Smart new styling features . . . cast aluminum construction, satin finish . . . hinged access doors . . . Ask for the "45 line".

SURFACE—Cast aluminum, satin finish and hinged access doors . . . flush, almost invisible hardware . . . "sightline" inscription panels. Ask for the "40 line".

RECESSED WALL— Protective guards or shock-resisting panels . . . cast aluminum, satin finish . . . hinged access doors. Ask for the "54 line".

All fixtures available with special wording and 4", 6" or 8" letters with red, green and white color combinations.

1337 Willoughby Ave., Brooklyn 37, N.Y.

CONSULT mc Philben Lighting SPECIFY

Representatives in major cities

notices

(Continued from page 250)

elections

LEO FRIEDLANDER was unanimously re-elected President of the NATIONAL SCULPTURE SOCIETY at the group's annual meeting in New York. Other officers elected were: FRANK ELISCU, First Vice-President; ANDREW L. REINHARD, Second Vice-President; ADOLPH BLOCK, Secretary; and HERBERT L. KAMMERER, Recording Secretary.

HENRI TALBOT GOUIN, Architect, was recently elected Secretary of OTTAWA CHAPTER, ONTARIO ASSOCIATION OF ARCHITECTS.

JOHN P. H. PERRY was recently elected a consultant to firm of SEELYE STEVENSON VALUE & KNECHT, Engineers, 101 Park Ave., New York, N. Y.

NEW YORK SOCIETY OF ARCHITECTS, which celebrates its Golden Anniversary in 1956, recently elected RICHARD ROTH, President; H. I. FELDMAN, Vice-President; JOHN JOSEPH CARROLL, Secretary; and NATHAN R. GINSBURG, Treasurer.

new offices, partnerships

ROBERT MURRAY WAGNER, Architect, 2 Lafayette Court, Greenwich, Conn.

K. C. STANLEY & COMPANY, Architects-Engineers, 618 Northern Hardware Bldg., Edmonton, Alberta.

J. STEVENSON & ASSOCIATES, Architects-Engineers, 340 Seventh Ave. W., Calgary, Alberta.

HYUN & COHN, Architects & Associates, 109 N. Larchmond Blvd., Los Angeles 4, Calif.

p/a congratulates . . .

ERNEST J. BOLDUC, JR., formerly architectural representative and metal curtain wall engineer for KAWNEER COMPANY, who has been appointed District Architectural Representative for KAISER ALUMINUM AND CHEMICAL SALES, INC., New York.

HERBERT SHULL, FRANK B. MILLER, MURRELL SPENCE, LAWRENCE BOURLAND, rcently selected as President, Vice-President, Secretary, and Treasurer, respectively, of the SLIDING GLASS DOOR AND WINDOW INSTITUTE. Nineteen Southern California firms constitute membership of the Institute.

H. THOMAS HALLOWELL, JR., newly elected President, AMERICAN STANDARDS ASSOCIATION, and VAN H. LEICHLITER, the Association's new vice-President.

JOHN W. CERVENKA, new General Sales Manager, Builders Hardware Division, ADAMS-RITE MANUFACTURING COMPANY, Glendale, Calif.

ROBERT E. BUCKLEY, newly appointed Assistant General Sales Manager, PITTSBURGH CORNING CORPORATION, Pittsburgh, Pa.

PAUL N. COLLIN, 1956 President of the WEATHERSTRIP RESEARCH INSTITUTE, Riverside, Ill., an organization composed of leading metal weatherstrip manufacturers in the United States.

E. J. O'LEARY, GEORGE F. BAHRS, and FREDERICK E. BYRNES, recently elected as Executive Vice-President, Vice-President and Treasurer, and Vice-President and Secretary, respectively, THE RUBEROID CO., New York.

JOHN E. NEUBERGER, new Manager, Advertising and Sales Promotion, GENERAL ELECTRIC's Wiring Device Department, Providence, R.I. and WILLIAM R. CHRISTOPHER, new Manager, Market Development, GENERAL ELECTRIC Chemical Development Department, Pittsfield, Mass.

HARRY A. KING, and THOMAS J. WALTERS, Manager and Assistant Manager respectively of THE RUBEROID CO.'s newly established department for handling sales of asbestos fiber, industrial insulation, corrugated asbestos sheets, pipeline protective products and asbestos.

CHASE copper tube for soil, waste and vent lines at little or no extra cost!

Consider *installation* costs, and you'll see why a Chase quality drainage system will cost little or *no more* than an ordinary system. Actual comparisons *prove* this!

Chase 3" Copper Drainage Tube fits *within* standard partitions, eliminates costly furring-out construction required with ordinary systems.

The *inside* of a Chase Drainage System is also worth talking about – Chase Copper Tube and Solder-Joint Fittings have no internal projections to trap waste – they provide fast, even drainage and make a neater, more compact job all around.

When planning, be sure to specify the best in copper drainage tube and fittings – be sure to specify *Chase!*

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WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

Chase® Copper
adds extra value
to any home!

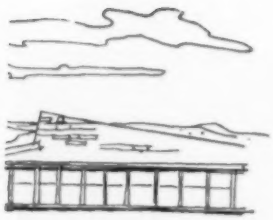
The Nation's Headquarters for Brass & Copper

Atlanta	Chicago	Denver	Indianapolis	Minneapolis	Philadelphia
Baltimore	Cincinnati	Detroit	Kansas City, Mo.	Newark	Pittsburgh
Boston	Cleveland	Grand Rapids	Los Angeles	New Orleans	Providence
Charlotte	Dallas	Houston	Milwaukee	New York	Rochester
St. Louis	San Francisco	Seattle	Waterbury		

Fenestra
SCHOOL DESIGN
NEWS

General Contractor: M. M. Sundt Construction Co., Tucson, Arizona.
Panel Erector: Chapman-Dyer Co., Tucson, Arizona.

There's built-in quiet in Window Rock classrooms with Fenestra Acoustical Building Panels. A high-efficiency acoustical material is enclosed in the cellular panel and the perforated flat-plate area absorbs the sound. Completely prefabricated, these long-span panels are erected quickly and at low cost. A coat of paint finishes the flush ceiling, and soap and water keep it like new. Repainting will not affect acoustical efficiency and there is no hanging or "stuck on" material to be damaged or replaced. An ideal ceiling for gymnasium and corridor areas, too. Ask your Fenestra representative for complete information.



Isolated location

and severe

climate created

unusual design problems for...

WINDOW ROCK

PUBLIC SCHOOL

Architect E. L. Varney, Phoenix, Arizona, specified Fenestra Metal Building Panels to simplify design, construction and maintenance.

Covered walkways are economical with Fenestra "E" Roof Deck for spans up to 20 feet. The 12" width co-ordinates with Fenestra Building Panels and modular construction. Simple design eliminates complicated detailing and engineering and saves structural steel. The exposed undersurface forms an attractive beamed finish ceiling.

In the center of a Navajo Indian Reservation, 1,000 miles in diameter, Window Rock is surrounded by some of North America's most desolate, yet starkly beautiful country. The site gets its name from a large rock with a natural hole in it created by thousands of years of wind erosion. Burned by the sun all summer and very cold in the winter, Window Rock created unusual problems of design and logistics for the construction of a million-dollar elementary and high school.

The materials chosen had to provide simple construction and require minimum maintenance. That's why Architect Varney specified Fenestra* long-span cellular steel building panels for the roof structure of the various units of the school and Fenestra "E" Roof Deck for the covered walkways connecting the buildings. (Photo above.)

Combining light weight with great strength, the Fenestra Building Panels were easy to transport and erect and provide for spans up to 30 feet. The 24-inch width of each panel simplified design details and modular co-ordination with other materials.

Interior areas feature Fenestra Acoustical Building Panels which provide the structural roof plus a built-in metal pan acoustical ceiling erected as one unit by one trade. (See photo left.)

While the school you are now planning may not have the location and climate problems of Window Rock, Fenestra Building Panels can save you both time and money on the structure. Easy maintenance keeps schools attractive, year after year, at minimum cost.

Ask your local Fenestra representative for complete information—he's listed in the Yellow Pages—or mail the coupon below.

*Trade-Mark

Fenestra Metal Building Panels

Your Single Source of Supply for
DOORS • WINDOWS • BUILDING PANELS

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Detroit 11, Michigan

Please send me information on Fenestra Building Panels for Schools.

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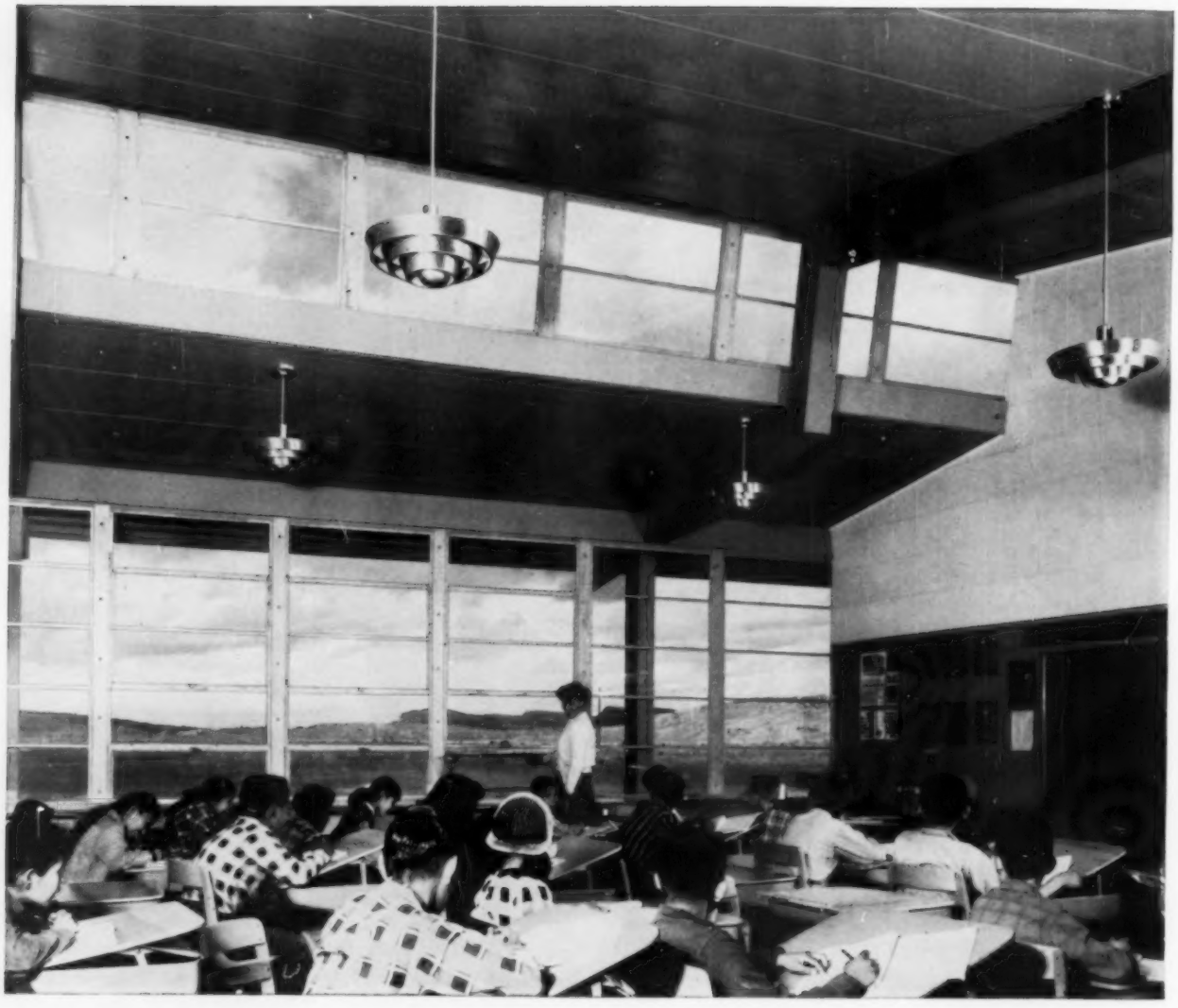

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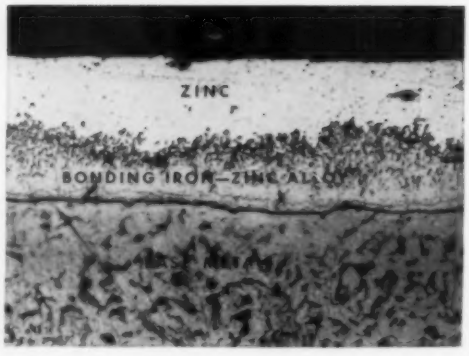

This microphotograph shows how the Fenestra Hot-Dip zinc coating alloys with the steel base metal for a lifetime finish. Scratches or pinholes in the surface are *self-healing* by sacrificial action of the zinc. The steel is always protected.

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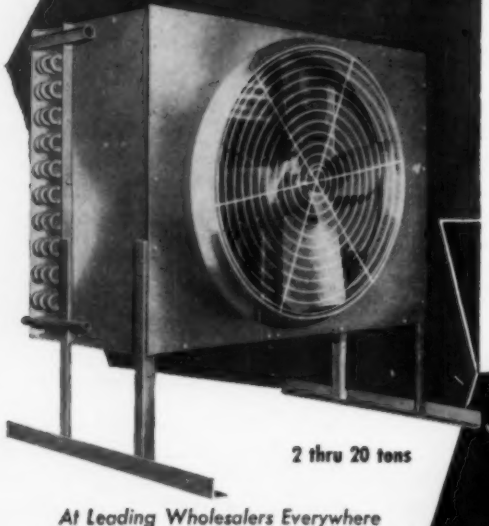

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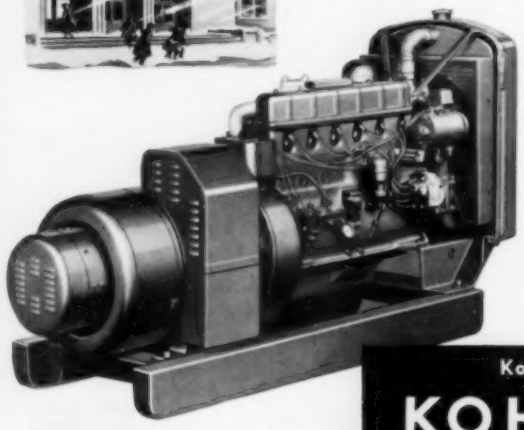

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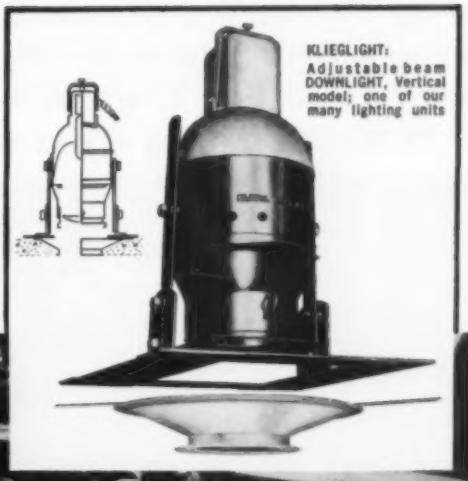

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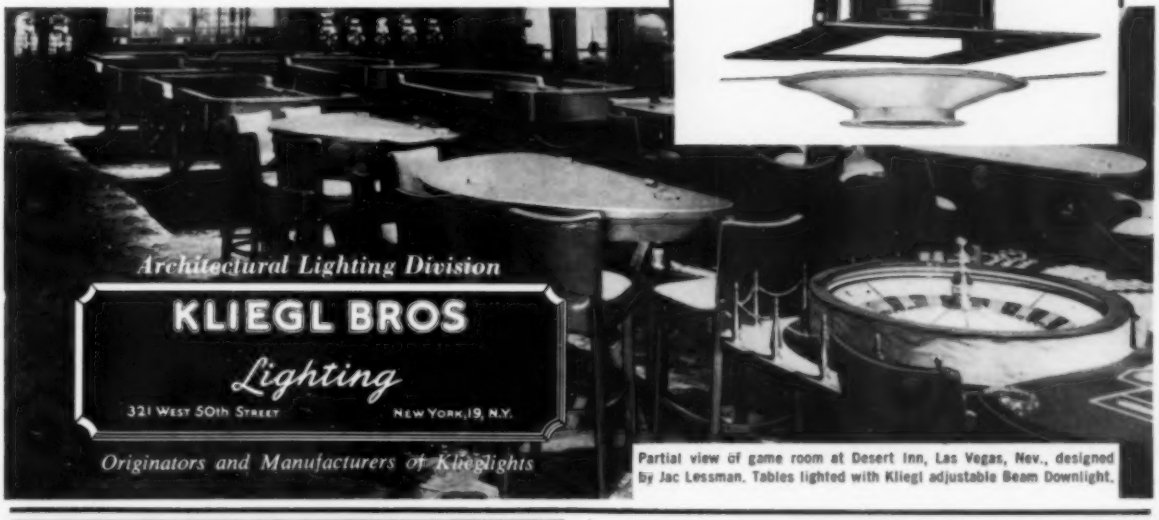

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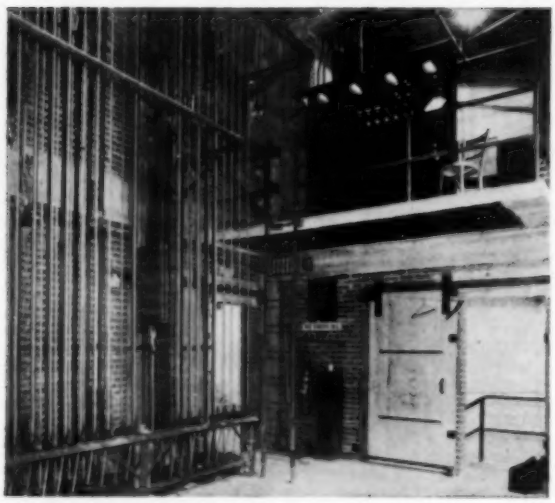

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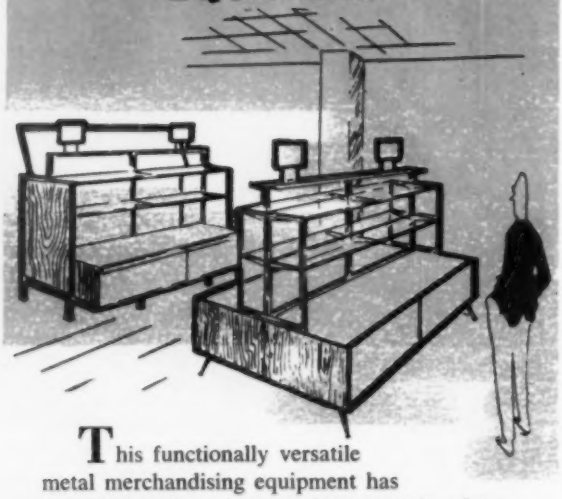

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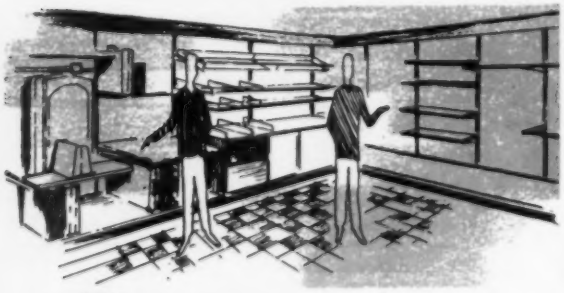

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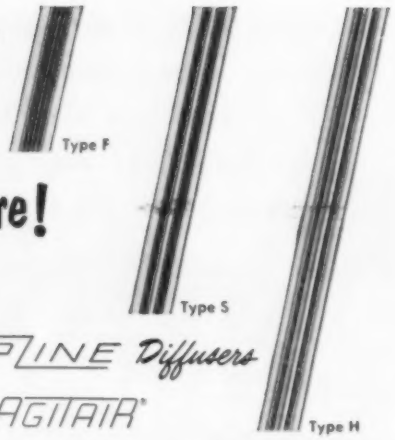

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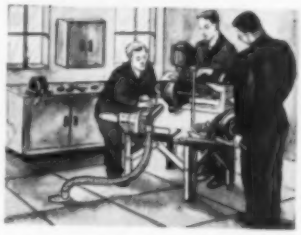

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P.S.

Elsewhere in this issue you will see pictures and read a news account of the P/A Awards Dinner in Detroit. To me it was an exciting and a stimulating evening for many reasons. In the first place, I think it is natural to have a satisfaction, as Editor of the magazine, in the many comments that were made about the importance this Design Awards Program has reached. That it has national professional significance above most of the many Awards being given seemed obvious from the attendance, both by Detroit architects and local civic leaders, and by the people who came from all parts of the country to receive their plaques. But it was also good to hear the import of these Jury selections of the best work in design emphasized by the speakers, and by so many of the people there. Comments such as Eero Saarinen's that it has become of "strategic importance to architecture in America," and Pietro Belluschi's that programs such as this are "milestones in our historical course and one of the means by which tradition is made."

The dinner was held in a room (one of the few in Detroit large enough to serve the 300 or so people who attended) which imposed great physical difficulties. Two impressive rows of great marble columns divided us from one another. To see slides and to hear the talks required a major shuffling around after the meal had been served. Many felt that this broke down formality and helped relax the group for the serious business of the evening, but it did complicate *conduct* of the program. When Walter Reuther began his talk, he said, "I would like to suggest—this is purely a layman's point of view—that if you could hold more meetings of architects in this kind of room you would not inflict your sins upon future generations." The stenotypist's report at this point is "(laughter and applause)."

I think that most of the people at the affair went away feeling that something of importance had been said—that the work being honored, in itself, the talks by Belluschi and Reuther, and the brief response by Stonorov from the winning architectural team, had made one big point: that architecture in the United States today can have tremendous social import. Without denying in the least the value of fine design as such (the primary basis on which the Awards are made), time after time the attitude was emphasized, directly or indirectly, that this design reaches great heights when it does something good for people. Belluschi said, "The concern of our profession now is no longer limited to the mere sculptural quality of individual buildings, but for the rightness and humanity of the total environment which must be achieved." And Reuther: ". . . architecture unrelated to the basic needs of a free people will fail to meet or serve its basic purpose."

We used to be very self-conscious about this "social usefulness" background for architecture and planning. There was a time not long ago when only the long-hairs, the do-gooders, the missionaries in our profession were concerned with its importance. Now, however, there isn't an architect doing a school job (and who isn't?) who doesn't realize that the *community*, the people, the large group of citizens who have kids of school age, are his client. Not in an abstruse, philosophical sense, but in the very real sense that these people have to be sold, and have to be satisfied, if he is going to get more work of the same type. Social responsibility, whether he likes it or not, is being thrust on him, and he has to live up to it if he's going to stay in business.

•

This point was brought home to me very clearly indeed, the week after our Detroit party. I was invited to Joliet, Illinois, to make a special presentation of the Award Citation won by Levon Seron and Skidmore, Owings & Merrill for the Joliet East Side Junior High School. There, some 325 people gathered in the gymnasium of one of the local schools for a cafeteria-type supper, to celebrate the launching of a school-building program that has come about by concerted community citizens' activity. We began with an invocation, a salute to the flag, the singing of "The Star Spangled Banner," and three pieces nicely rendered by the girls' choral group of the school we were in. Awards were presented to individuals and committees who have worked on various jobs, from survey to letting of contracts for a group of new schools. Then, I had the privilege of presenting the P/A Award Citation to the architects, and to the Board. We closed with the singing of "God Bless America."

This, that I have described, *is* America, God bless her—and this is one good reason we're getting some good school architecture.

•

Some day I would like to write an essay on the phenomenon of the "no-show" in modern American life. Traveling a great deal, and eating in many restaurants, I am very conscious of the person who makes a reservation and then doesn't show up to claim it. It's a part of the business of moving in crowds which tax available facilities (I've just been part of the crowd of 30,000 or so who attended the National Association of Home Builders convention in Chicago), and part of the more casual attitude we take toward events, such as travel, that used to be treated more importantly. I am very tired of being told that there's no more space, on a train or airplane, or in a restaurant or at a hotel, knowing perfectly well that at the last minute there *will* be space, because some people didn't "show." I know that the problem is driving the airlines, in particular, slightly mad. Over the year-end holiday travel rush they were faced with it on an unprecedented scale, and handled it very badly. On flights so crowded that even waiting lists were closed, planes took off with empty seats. On the other hand, the slightest tardiness in checking in meant that your space would be sold to a standby. The sale of space, in other words, is a tongue-in-cheek operation on both sides.

Just how this affects architects, so that I can make my essay pertinent, I don't know — except that architectural school administrators tell me they have to guess on the number of "no-shows" at student registration time, in the same way hotel reservation clerks do. Many candidates register in several schools, making up their minds at the last minute, sometimes not even having the courtesy to notify the "canceled" institution.

I suppose that some of the potential clients who come into architects' offices all enthusiastic about a project, who never turn up again (when they've been led to talk in realistic terms), might be classed as "no-shows." And certainly the chap who shops around for preliminary suggestions from a number of architects, choosing one while the others are still on the hook, is comparable to the traveler who makes reservations on three carriers and lets two drop.

The problem of the airlines and the railroads and the hotels seems to be that they have to refund for canceled reservations. If the traveler knew that he would have to pay full price for space he decided not to use at the last minute, he might not, so often, fail to show. Maybe, if it's not streching the analogy too far, this is a good argument for the protection Bernie Tomson's been promoting for so long—the retainer demanded by the architect of possible "no-show" preliminary clients.

Thomas H. Creighton

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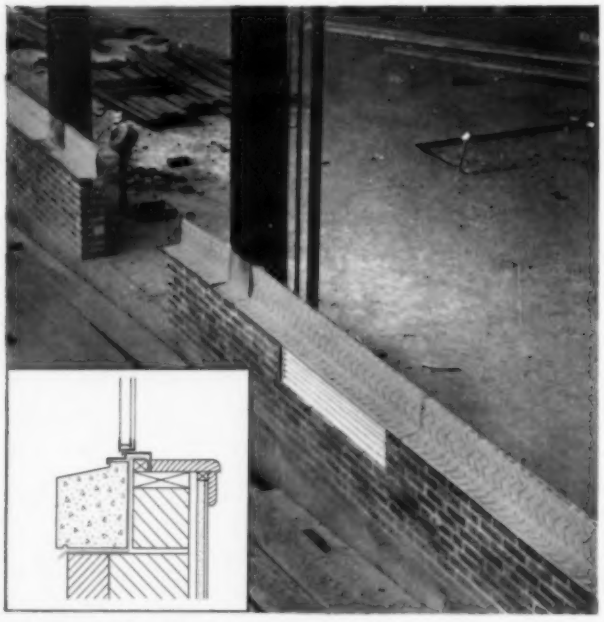

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